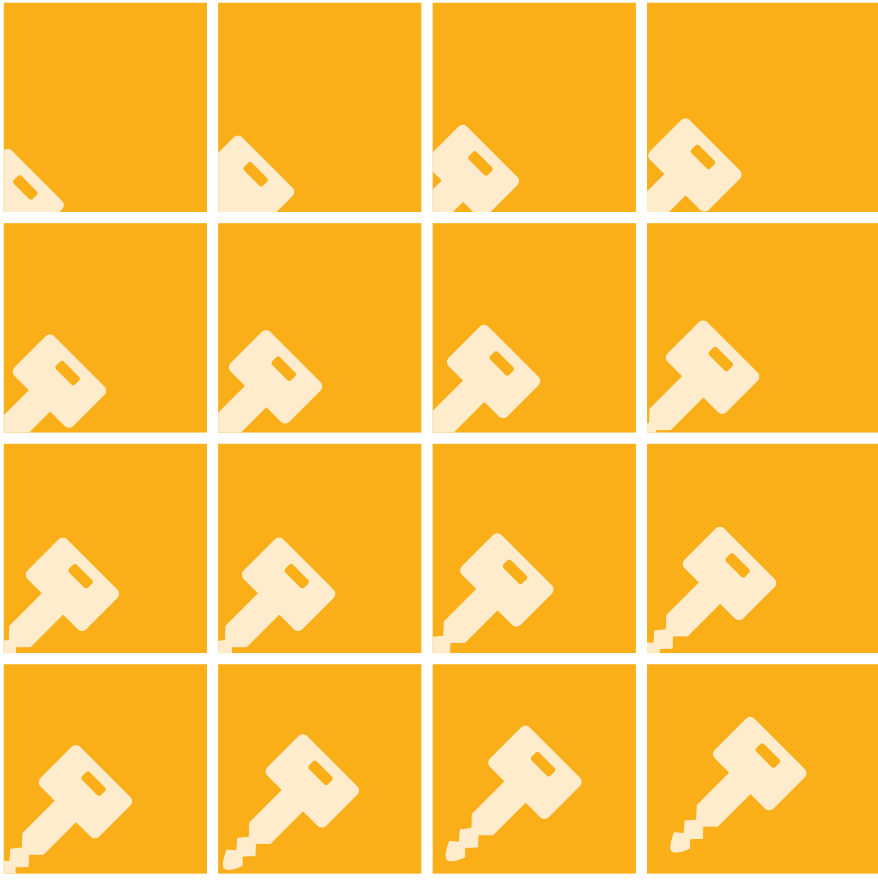
FUSO

Owner's Manual

2014 Model

CANTER



Pub. No. MH996888

OWNER AND VEHICLE INFORMATION

OWNER NAME: _____

USER/COMPANY NAME: _____

MAILING ADDRESS: _____

CITY, STATE: _____ ZIP: _____

VEHICLE IDENTIFICATION NUMBER: _____

DATE OF DELIVERY (WARRANTY START DATE): _____ / _____ / _____
MO. DAY YR.

SELLING DEALER IMPRINT HERE

Foreword

Thank you for purchasing a Mitsubishi Fuso FE, FG Truck.

This Owner's Manual explains proper vehicle handling, simple maintenance practices, and the periodic maintenance schedule to ensure that you are able to drive your vehicle safely and comfortably.

As improper use of the vehicle may result in a breakdown or cause an accident, we urge you to read this handbook thoroughly before operating the vehicle.

Please keep this manual in the vehicle so it is always available for reference. If you sell the vehicle, make sure the next owner receives this manual and is aware of its contents.

MITSUBISHI FUSO
TRUCK OF AMERICA, Inc.

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Reading the handbook

- The information in this manual is accurate as of the time of printing. Because of differences in specifications and improvements that may be added after preparation of this manual, some of the explanations and illustrations in this handbook may not apply to your vehicle.
- The following symbols are used throughout this handbook:

  OPT : optional equipment
  ⇨ : requests that reader should refer to the page of the number indicated.

- This manual contains important cautionary instructions and supplementary information under the following four headings which identify the nature of the instructions and information:

⚠ DANGER	Precautions that should be taken when handling dangerous substances such as battery fluid in order to prevent a serious injury or death
⚠ WARNING	Precautionary instructions, which, if not observed, could result in serious injury or death.
⚠ CAUTION	Precautionary instructions, which, if not observed, could result in damage to or destruction of equipment or parts.
NOTE:	Suggestions or supplementary information for more efficient use of equipment or better understanding.

- California Proposition 65 Warning

⚠ DANGER

THIS PRODUCT CONTAINS OR EMITS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

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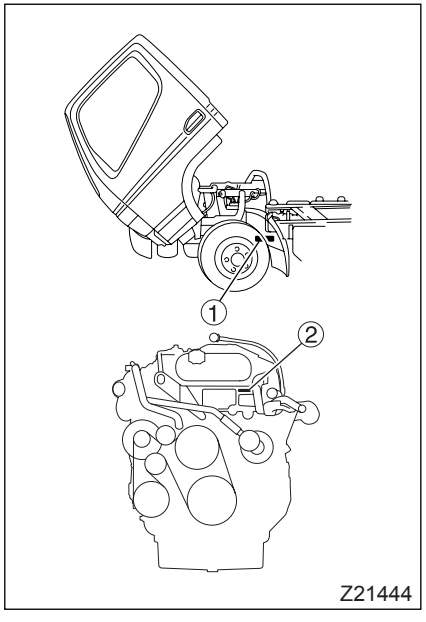


Chassis and engine numbers

1 Chassis number

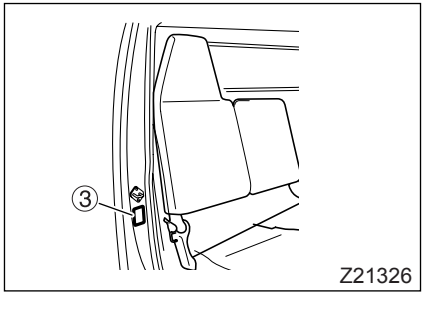
The chassis number ① is indicated on the left frame, near the left front wheel.

Example: FEC52 - □□□□□□
Chassis number
Vehicle model

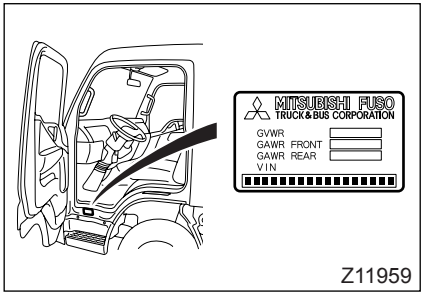
2 Engine number

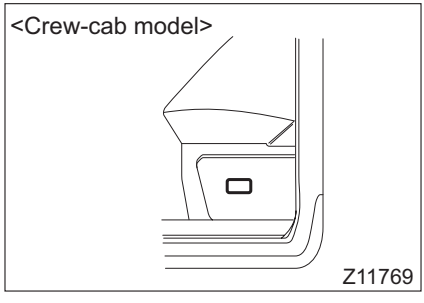
The engine number ② is indicated on the front side of the cylinder head.

Example: 4P10 - □□□□□□
Engine number
Engine model



A label ③ indicating the vehicle information including the vehicle model, chassis number, and engine model is affixed to the pillar of the assistant driver's door.





Vehicle identification number (VIN)

The VIN is stamped on a plate that is located as shown in the illustration.

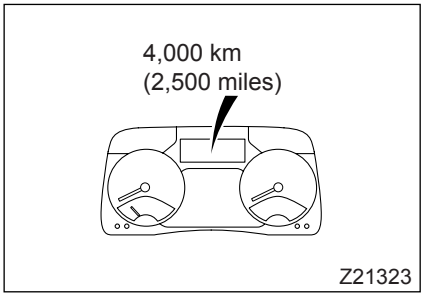
The VIN comprises 17 numbers and letters, the meanings of which are listed below.

J	L	6	A	R	G	1	A	■	E	K	■■■■■■
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫

① Country	J:	Japan
②, ③ Vehicle type	L, 6:	Incomplete vehicle
④ Gross vehicle weight / Brake system	A:	10,001 to 14,000 lbs. / Hydraulic
	B:	14,001 to 16,000 lbs. / Hydraulic
	C:	16,001 to 19,500 lbs. / Hydraulic
⑤ Line	M:	FEC52S
	N:	FEC72S
	P:	FEC72W
	R:	FEC92S
	S:	FGB72S
⑥ Series (wheel base)	C:	2.6 to 2.89 m (8.53 to 9.48 ft.)
	E:	3.2 to 3.49 m (10.49 to 11.44 ft.)
	G:	3.8 to 4.09 m (12.46 to 13.41 ft.)
	H:	4.1 to 4.39 m (13.45 to 14.40 ft.)
	K:	4.7 to 4.99 m (15.41 to 16.37 ft.)
⑦ Cab chassis type and make	1:	Chassis cab for Mitsubishi Fuso
⑧ Engine	A:	2.998 L Diesel turbo charged and charge air cooled
⑨ Check digit		
⑩ Model year	E:	2014
⑪ Plant	K:	Kawasaki
⑫ Plant sequential number		

Maintenance

Checking your vehicle at regular intervals is very important for maximizing performance and extending service life. It is recommended that you make a habit of performing the following inspections.
This manual describes simple maintenance checks and procedures that can be carried out by the owner. If you have difficulty or your vehicle needs maintenance work that is not shown in this manual, please refer to an authorized dealer.

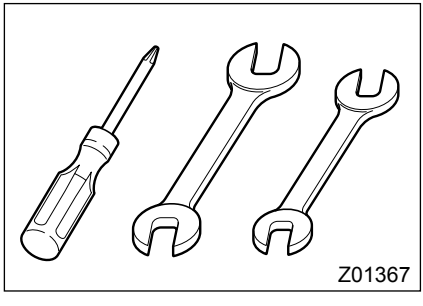


1 First maintenance at 4,000 km (2,500 miles)

After you have driven the first 4,000 km (2,500 miles), your vehicle requires a special inspection and adjustments to compensate for the initial settlement of various parts. When the distance has been reached, have your vehicle inspected by an authorized dealer by showing them this Owner's Manual.

2 Pre-operational check

Make a habit of checking your vehicle at the start of every day's operation. This will ensure safe and comfortable operation. ⇨ P. 12-11



3 Periodic inspection

In addition to maximizing the vehicle's working life, regular inspections also help prevent accidents. Periodic inspection is based on either the distance traveled (odometer reading) or period of use (months/years).
The intervals between and content of periodic inspections are as shown in the Maintenance Schedule section. Please adhere to the maintenance schedule carefully.

Fuels

Use only diesel fuels conforming to the following recommendations, without any additives, for diesel engines installed in Mitsubishi Fuso trucks.

1 Diesel-fuel properties

The following recommendations concerning diesel fuel used with Mitsubishi Fuso diesel engines are given for optimum fuel economy and performance.

Use condition	Recommendation
Normal operation at temperatures above –12°C (10°F).	ASTM D-975 Grade Ultra Low Sulfur Grade 2-D*
Operation at temperatures below –12°C (10°F), or long-hour no-load operation.	ASTM D-975 Grade Ultra Low Sulfur Grade 1-D*

Biodiesel fuel can be used if it has a 5% or lower blend ratio and complies with ASTM D-6751.

NOTE:
** ASTM is an acronym for the American Society for Testing and Materials which recommends fuel containing 0.0015% – basis 15 ppm sulfur or less sulfur content.*
Note that a sulfur content exceeding 0.0015% – basis 15 ppm sulfur deteriorates the performance of emission control device.

To meet fuel requirements, it is necessary to obtain cooperation from a reputable fuel oil supplier. Both fuel suppliers and users are responsible for keeping fuel clean.

2 Diesel fuel to be used in your engine

Use only a ultra low sulfur diesel fuel (with a sulfur content of 15 ppm or lower) for refueling your Mitsubishi Fuso diesel engine. Otherwise, the catalyst inside the diesel particulate filter (DPF) will not work effectively and the DPF's performance of removing small particles (particulate matter or PM) in exhaust gases will be degraded. Furthermore, your truck will not meet emission regulations if you replenish it with a non-approved fuel.

3 Danger of fire and explosion by using mixed fuel

Fuel containing 5% gasoline has a flash point as low as 0°C (32°F), which can lead to a fire or explosion while the engine is running.

⚠ DANGER

NEVER MIX DIESEL FUEL WITH GASOLINE, GASOHOL OR ALCOHOL.
USE OF FUEL MIXED WITH ONE OR MORE OF THESE COULD LEAD TO A FIRE OR EXPLOSION INVOLVING SERIOUS INJURY, DEATH OR PROPERTY DAMAGE. IF YOU ACCIDENTALLY USE GASOLINE OR ALCOHOL WHEN REFUELING THE VEHICLE, REMOVE ALL OF IT FROM THE FUEL SYSTEM.

4 Adverse effects of mixed fuel on engine

Using diesel fuel mixed with gasoline, alcohol, or both, has the following adverse effects on the engine:

- Fuel viscosity becomes lower, resulting in excessive wear, damage, and failure of fuel system parts.
- Difficulty in starting the engine will result due to a reduced cetane number.

⚠ CAUTION

- **The lower the cetane number, the more likely internal engine damage will occur.**
- **Do not add antifreeze agents or other substances to the fuel. They could damage the engine's fuel injection system.**
- **If the fuel tank cap and breather (air hole) become so dirty that the breather gets blocked, the fuel tank may deform and the fuel injection system may fail. Be sure to clean them regularly.**

5 Refueling

⚠ WARNING

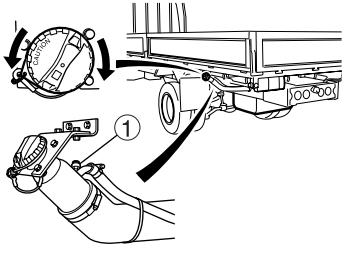
- **Stop the engine before fueling.**
- **Never smoke when fueling since diesel fuel could ignite or explode.**
  Never operate lighters or other items that emit sparks.
- **If you inadvertently put gasoline in the fuel tank, pump it all out. Running the engine with gasoline in the tank could cause a fire or explosion endangering your or other people's lives.**

⚠ CAUTION

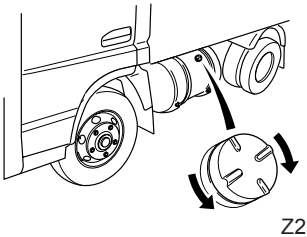
Be careful not to allow the engine to run out of fuel. Engine stall resulting from an empty tank could cause damage to the fuel injection system.

NOTE:
If the vehicle runs out of fuel, air will enter the fuel system. Simply refueling the vehicle will not make the engine startable ; the air must be bled out of the fuel system. ⇨ P. 13-31

<113-liter fuel tank>



<125-liter fuel tank>



Z23257

- **113-liter fuel tank**

The fuel tank is at the rear of the vehicle. To open the fuel tank cap, slowly turn it counterclockwise. To close the cap, turn it clockwise until you hear a click.

Fuel tank capacity
113 liters (29.8 gallons)

- **125-liter fuel tank**

The fuel tank is on the left-hand side of the vehicle. To open the cap, slowly turn it counterclockwise. To close the cap, turn it fully clockwise.

Fuel tank capacity
125 liters (33 gallons)

⚠ WARNING

- **When filling the fuel tank using a gun-type fuel pump, do not continue pumping after the pump automatically stops. (The tank is full at this point.) When filling the fuel tank using any other method, stop as soon as the surface of the fuel becomes visible through the opening of the fuel filler. If you supply so much fuel that it comes up to the opening, fuel may leak though the check valve ① when the vehicle starts moving and when it stops moving. If fuel leaks, carefully wipe it all up to prevent the risk of fire.**
- **If the pointer of the fuel gauge is above the "F" mark, do not add the fuel any more.**

DEF (Diesel exhaust fluid)

DEF is injected into the exhaust gas inside the muffler in order to break down NOx (oxides of nitrogen) in the exhaust gas into water and nitrogen, and thus reduces the amount of NOx. ⇨ P. 5-49

⚠ WARNING

DEF is a colorless, transparent, odorless and harmless water solution (urea 32.5%, water 67.5%; Freezing temperature -11°C (12°F)), so no problem will occur if you get it on your skin. However, some persons with delicate skin may in very rare cases get a rash, so carry out the following procedure.

- **If DEF gets on your skin, wash it off with water. If there is any change in your skin or it is painful, promptly see a doctor to receive treatment.**
- **In the event that you accidentally ingest DEF, drink one to two cupfuls of water or milk, and promptly see a doctor to receive treatment.**
- **If DEF gets into your eyes, immediately wash your eyes with a copious amount of water, then see a doctor to receive treatment.**

1 DEF used

Be sure to use DEF that conforms to ISO 22241.
ISO: International Organization for Standardization.

⚠ CAUTION

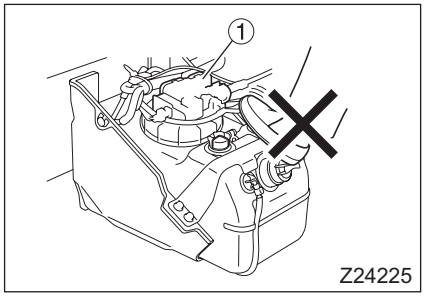
Do not carry out the following when using DEF because this may cause damage to the BlueTec® exhaust gas aftertreatment.

- **Do not dilute the DEF.**
- **Do not mix the DEF with another reagent.**
- **Do not use DEF that does not conform to ISO 22241.**

2 Replenishing DEF

⚠ WARNING

Do not pour anything other than DEF into the DEF tank. Particularly, never pour diesel fuel or gasoline into the DEF tank, because this may cause a fire or damage the BlueTec® exhaust gas aftertreatment.
If you accidentally fill the DEF tank with any fluid other than DEF, immediately turn the starter switch to the "LOCK" position, and contact an authorized dealer to have the incorrectly added fluid drained off and the vehicle inspected.



⚠ CAUTION

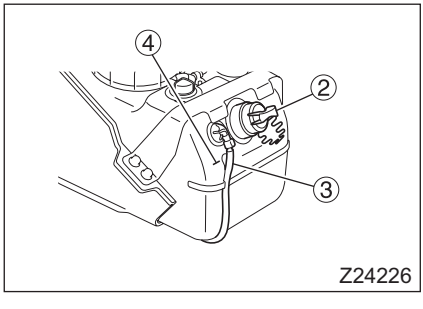
Do not rest your foot on the DEF tank or step on it, because this may damage the tank and/or the sensors ① on it.

NOTE:

- *Replenish the DEF well before it is used up.*
- *It is recommended that you obtain portable DEF for use in the event that the DEF tank becomes empty.*
- *You can obtain DEF at any of the following places:*
  - *Authorized dealer*
  - *Authorized Parts and Service Center (PSC)*
  - *Old World Industries distributor*
  - *Exxon Mobil service station*

DEF tank capacity	12 liters (3 gallon)

1. Turn the starter switch to the “LOCK” position to stop the engine.
2. Wipe away dirt, mud, or other contamination in the vicinity of the replenishment port.
3. Turn the cap ② counterclockwise and remove it.
4. While observing the level gauge ③, replenish the DEF to the FULL line ④ on the tank.



⚠ CAUTION

- **Do not use a steel container to hold DEF. DEF reacts with steel and produces a corrosive material. If the tank is refilled with DEF containing this corrosive material, the BlueTec® exhaust gas aftertreatment will be damaged.**
- **Containers and appliances used to handle DEF must not have been used for other purposes. Impurities that may remain in them could adversely affect the quality of DEF and prevent the engine from starting.**

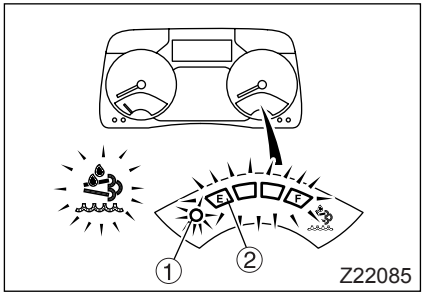
5. Install the cap securely by turning it clockwise.

NOTE:
If you spill the DEF during replenishment, wipe it away with a cloth, or the like, and then wash the area with water.

6. If the DEF tank becomes empty, a driving restriction automatically engages, locking the gear in first or reverse, so the vehicle can be driven only slowly.

3 Method for canceling the driving restriction that has engaged due to an empty DEF tank

If the DEF tank becomes empty, a driving restriction automatically engages, locking the gear in first or reverse, so the vehicle can be driven only slowly.
In the event of a driving restriction, replenish the DEF and then disengage the restriction as follows.



1. After refilling the tank with DEF, turn the starter switch from “LOCK” to “ON”.
2. Wait until the following changes in state have completed.
   - The warning lamp and DEF level warning lamp ① go out.
   - The DEF level indicator lamp ② stops flashing.
   - The buzzer stops sounding.

   Do not turn the starter switch to the “ACC” or “LOCK” position before all the above changes have completed.

NOTE:
- *It may take a while after placing the starter switch to “ON” for the warning lamp to go out and for the buzzer to stop sounding.*
- *If the DEF tank becomes empty in cold weather, perform the driving restriction canceling procedure immediately after refilling the tank with DEF.*

4 Storing the DEF

Seal the DEF container, and store it indoors in a well-ventilated place away from direct sunlight.
The temperature of the storage place should be between –5°C (23°F) and 25°C (77°F).

⚠ WARNING

Do not store DEF in a high temperature location.
If the temperature is high, DEF may release ammonia, which is toxic. When storing the container, seal it. Also, open it outdoors in a well-ventilated area. If a pungent odor is emitted from the container, do not carelessly go near it.

NOTE:

- *You can use frozen DEF after allowing it to thaw, without loss of quality.*
- *If you seal the container so as to prevent the water from evaporating, the quality of the DEF will not change.*
- *Although DEF is a non-flammable liquid, it may emit a pungent odor if it is heated due to a fire, for example. In the event that a fire breaks out, promptly move the container to a safe place.*

- It is strongly recommended to store or carry DEF in the original container in which it was sold. If unavoidable, you can also use a polypropylene tank usually used for drinking water or the like instead, after thoroughly cleaning the inside with DEF and making sure that it contains absolutely no water or other impurities.

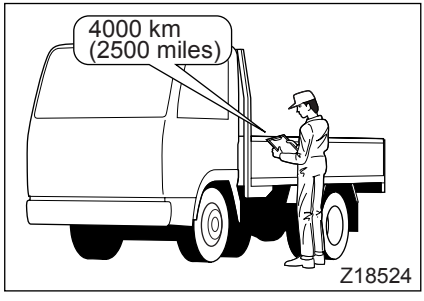
⚠ CAUTION

Do not store DEF in a non-specified container. If DEF is stored in a steel container and then used for replenishing, corrosive material produced by chemical reactions will damage the BlueTec® exhaust gas aftertreatment.

- DEF must be handled as industrial waste when discarding it.

⚠ CAUTION

Do not discard DEF in a lake or marsh, in the sea, or in a river because this may cause environmental destruction.

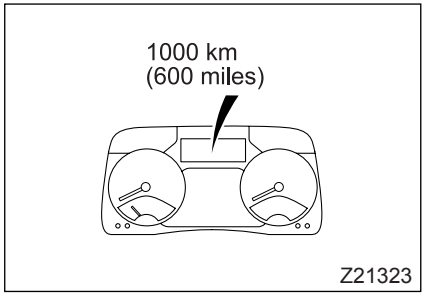


Handling of the new vehicle

The way the vehicle is handled when new greatly affects its subsequent performance and service life. Observe the following precautions when handling the new vehicle.

1 Maintenance

The “first maintenance at 4,000 km (2,500 miles)” is very important for extending the service life of your vehicle. We strongly recommend that you have this inspection carried out by an authorized dealer. Be sure to give the dealer this manual at that time.



2 Maximum engine speed during run-in period

To avoid overburdening a new engine, limit engine RPM to that indicated below for the first 1,000 km (600 miles).
Then, run in your vehicle step by step at various speeds, beginning with low gears.

Maximum engine RPM during run-in period
2,800 rpm

Reporting safety defects

If you believe that your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform both the National Highway Traffic Safety Administration (NHTSA) and the Mitsubishi Fuso Truck of America, Inc. (MFTA).
If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or MFTA.
To contact NHTSA, you may either call the Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153) or write to: Administrator, U.S. Department of Transportation National Highway Traffic Safety Adminstration Office of Defects Investigation -NVS-210 1200 New Jersey Ave. SE West Building Washington, DC 20590.
You can also obtain other information about motor vehicle safety from the Vehicle Safety Hotline.
For further information, please visit the following NHTSA website:
http://www.safercar.gov

Obtaining service

At Mitsubishi Fuso Truck of America, Inc. (MFTA), we are proud of the quality and workmanship that is built into every MFTA Truck. We are equally proud of our corporate commitment to promote the highest possible degree of customer satisfaction with our products and services.

Today's trucks are extremely complex and are comprised of an enormous number of individual parts. Occasionally, a failure of one of these parts may occur. Should you experience such a failure, we are confident that you will find an Authorized Dealer prepared to provide you with high quality service. Every Authorized Dealer has trained personnel, plus the tools and equipment necessary to provide for your various service needs. In the event that a problem arises, we ask you to follow the procedure outlined as follows, and in the sequence listed:

STEP 1: Contact your Nearest Authorized Dealer

This is the most direct and expedient way to obtain service. Each Authorized Dealer has the ultimate responsibility for providing the services and repairs you may need. We recommend that you contact the Service Manager of your nearest Authorized Dealer for assistance. In the event that you feel additional assistance is required, ask to speak to the General Manager of the Authorized Dealer.

STEP 2: Contact MFTA

After the completion of Step 1, and in the event that your nearest Authorized Dealer has been unable to satisfactorily resolve the problem, please contact MFTA's Customer Service Representative at **1-877-711-0707**.

Please be prepared to provide the following information when you call:

- Your Name, Company Name, Address, Telephone Number
- Vehicle Model
- Vehicle Model Year
- Vehicle Identification Number
- Mileage
- Name of Dealer contacted under Step 1, if applicable
- Details of the Complaint/Comment

You also may correspond with the Customer Service Representative in writing, addressed to:

MITSUBISHI FUSO TRUCK OF AMERICA, INC.
CUSTOMER SERVICE REPRESENTATIVE
2015 CENTER SQUARE RD.
LOGAN TOWNSHIP, NJ 08085

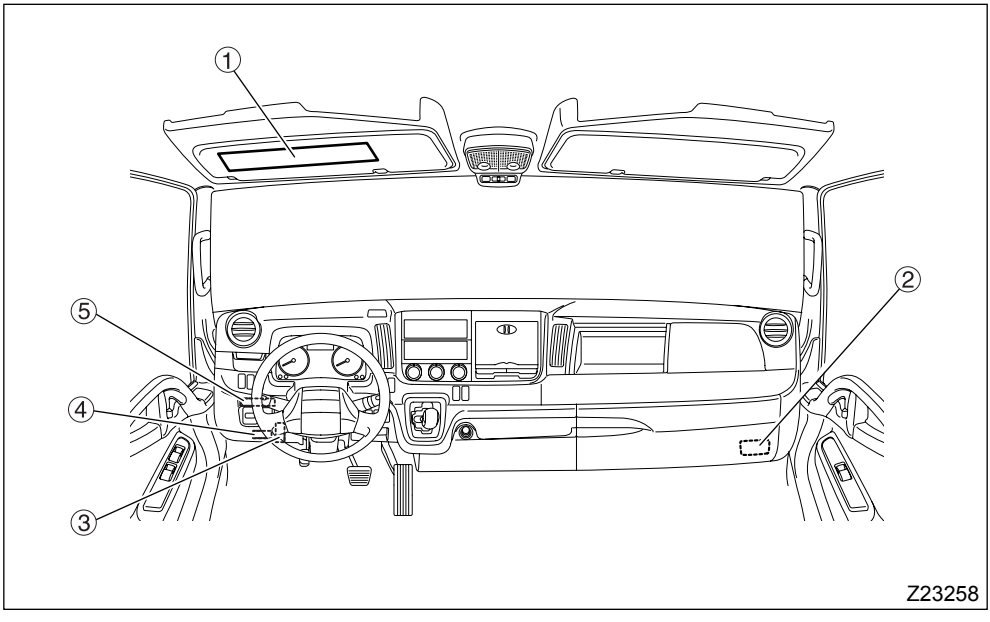
2. Warning labels

Labels inside the cab 2-3
Exterior labels 2-5

- The caution and warning labels show important information. Be sure to read them before using the vehicle.
- If any label has peeled so it is difficult to read, is scratched or otherwise damaged, or has peeled off completely, please inform an authorized dealer. The warning and caution labels apply only to the vehicle itself, not to any equipment mounted on the vehicle. For information on caution and warning labels that apply to equipment mounted on the vehicle, please refer to the Owner's Manual supplied by the manufacturer of the equipment.
- The locations of these labels and the information on them may vary with the vehicle model. Check the information on each label on your vehicle.

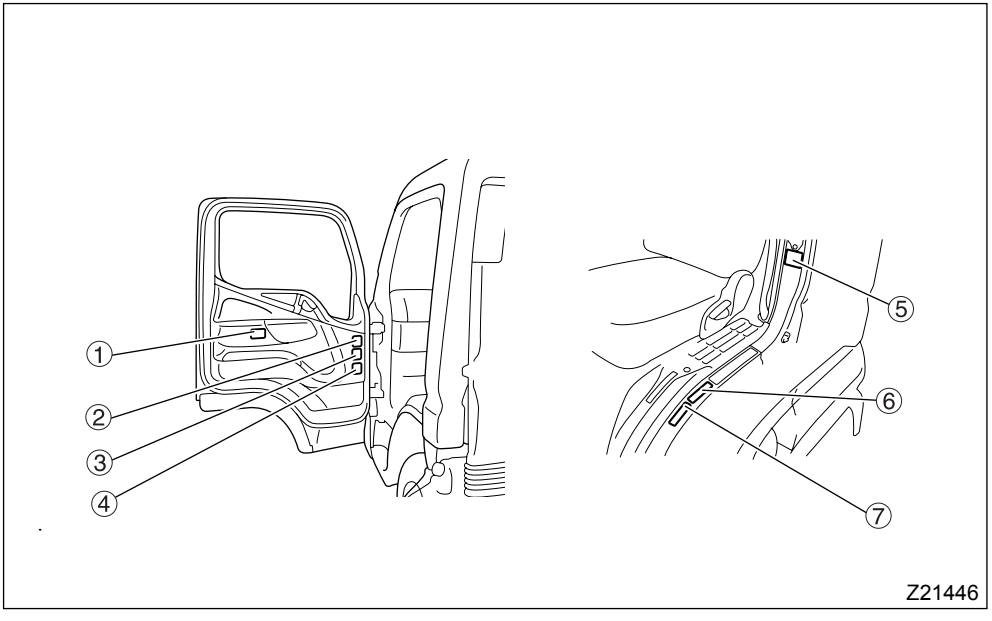
Labels inside the cab

1 Around the driver's seat



Location	Category	Information	Ref. page
①	⚠ WARNING	High temperatures of exhaust system components	5-51
	⚠ WARNING	Handling of DPF system with regeneration control	5-51
	⚠ WARNING	Handling of DEF	1-8
②	⚠ WARNING	Use of specified fuses	13-10
③	⚠ WARNING	Engine oil level check	12-23
④	⚠ WARNING	Fuel to use	1-5
⑤	⚠ WARNING	DPF indicator lamp	5-51

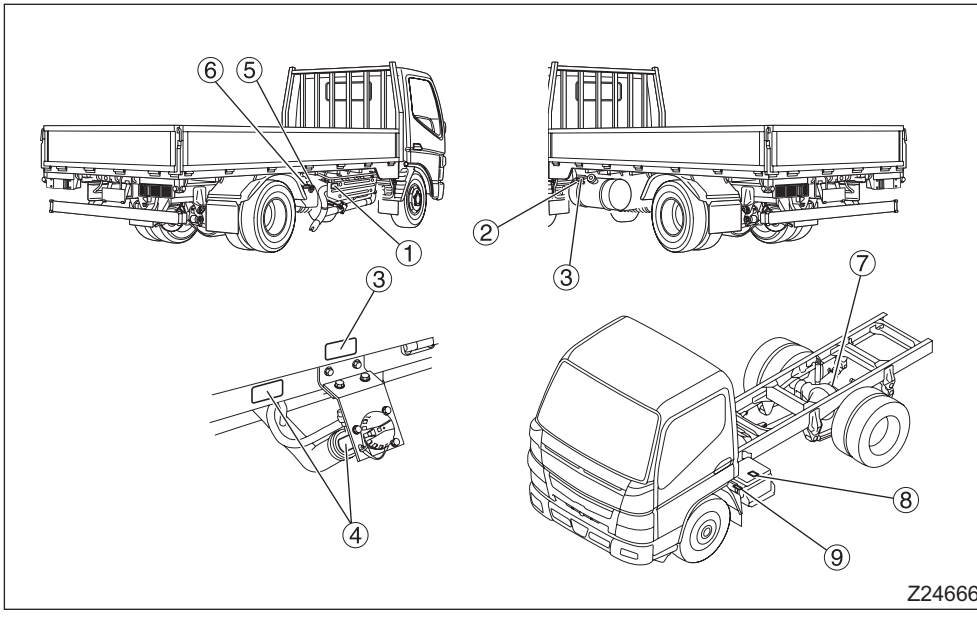
2 On driver's door and door pillar



Location	Category	Information	Ref. page
①	⚠ CAUTION	Handling of PTO <option>	5-46
②	⚠ WARNING	Handling of DUONIC®	5-20
③	⚠ WARNING	4WD <FG>	8-1
④	⚠ CAUTION	Towing precautions	13-32
⑤	Standard value	Tire pressure	12-67
⑥	⚠ WARNING	113-liter fuel tank refilling precaution	1-5
⑦	⚠ WARNING	Precautions for vehicles with limited slip differential <FE: option; FG: standard>	12-70

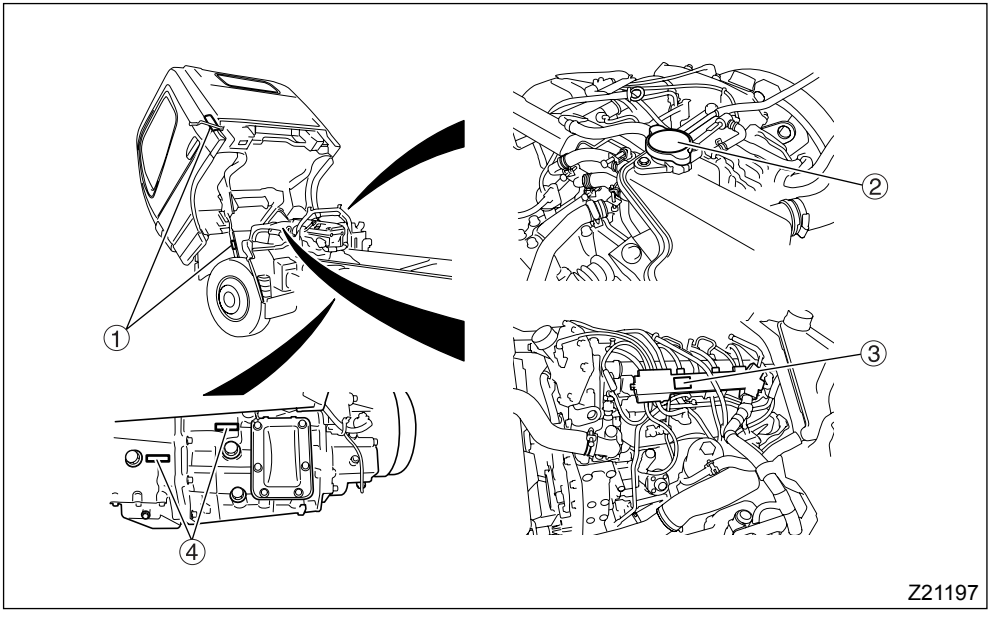
Exterior labels

1 On frame and exterior equipment



Location	Category	Information	Ref. page
①	⚠ DANGER	High temperatures of exhaust system components	5-51
②	⚠ CAUTION	Use of diesel fuel	1-5
③	⚠ WARNING	Fuel to use	1-5
④	⚠ WARNING	113-liter fuel tank refilling precautions	1-5
⑤	⚠ CAUTION	Prohibition against standing on DEF tank	1-8
⑥	⚠ CAUTION	Use of DEF	1-8
⑦	⚠ CAUTION	Oil to use for limited slip differential <option>	12-34
⑧	⚠ DANGER	Precautions when handling the battery	12-83
⑨	⚠ WARNING	Use of specified fuses	13-10

2 On cab outside and engine

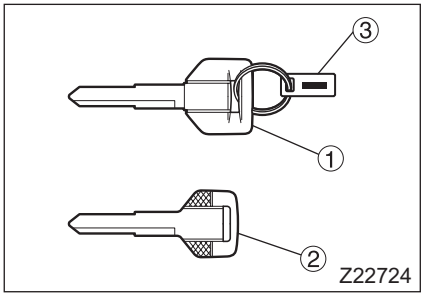


Location	Category	Information	Ref. page
①	⚠ WARNING	Handling of cab tilt function (Vehicles other than Crew-cab models)	12-6
②	⚠ WARNING	Handling of pressure cap	12-57
③	⚠ CAUTION	Inspection and replacement of engine oil	12-23
④	⚠ CAUTION	Oil to use for clutch and transmission	12-28

3. Opening and closing

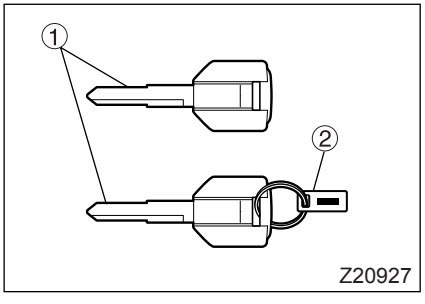
Starter key 3-2
Engine immobilizer (theft prevention device) 3-3
Doors 3-6
Central door locks 3-8
Keyless entry system 3-9
Entering and leaving the vehicle 3-13
Door window glass 3-15

Starter key



<Type1>

- There are two starter keys: a main key ① and a sub key ②. You can use either of these starter keys for locking/unlocking the doors and starting/stopping the engine.
- Please make a note of the starter key number ③. You can purchase more starter keys if you inform an authorized dealer of this number.



<Type2>

- Your vehicle comes with a two-piece starter key set ①.
- The starter key can be used to start and stop the engine and lock and unlock the doors.
- Be sure to remove the number plate ② and keep it in a safe place. You can purchase more starter keys if you inform an authorized dealer of this number.
- The starter key incorporates an engine immobilizer function (theft prevention function). For the engine immobilizer, refer to the next page.

⇨ P. 3-3

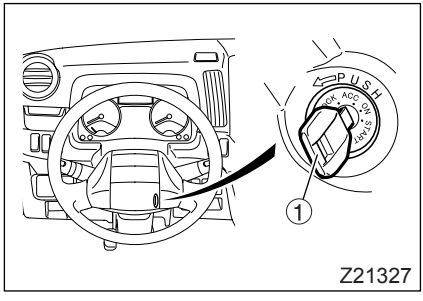
NOTE:

- *The engine cannot be started unless you use an immobilizer starter key that has been registered to your vehicle's immobilizer system.*
- *Do not store the engine immobilizer starter key near a magnet of any other source of magnetism.*

Engine immobilizer (theft prevention device)

<Vehicles with engine immobilizer>

1 Engine immobilizer

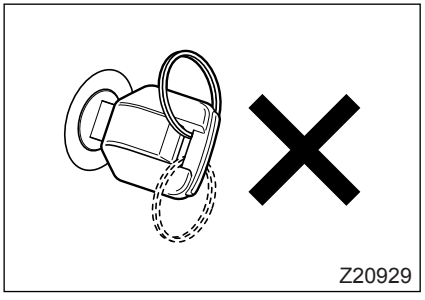


Z21327

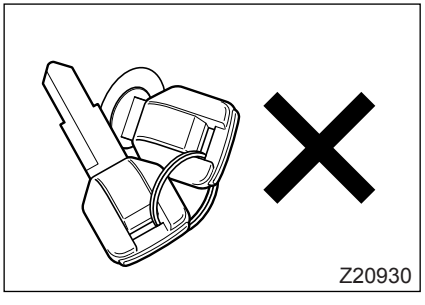
NOTE:
The immobilizer complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) The immobilizer may not cause harmful interference.
(2) The immobilizer must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- The engine immobilizer is a theft prevention device. It prevents the engine from being started unless an engine immobilizer starter key ① that has been registered to it is used.
- The engine immobilizer automatically starts operating as soon as the starter switch is turned to "ACC" or "LOCK". Once the engine immobilizer is activated, it prevents the engine from being started.
- The engine immobilizer starter key sends a signal to the vehicle, thereby canceling the engine immobilizer such that the engine can be started.

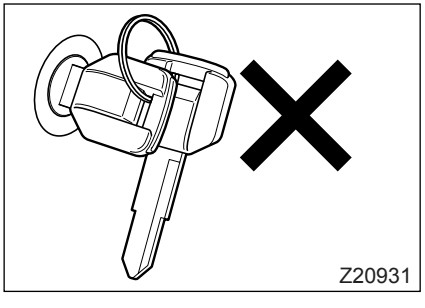
NOTE:
In the circumstances detailed below, it is possible that the vehicle cannot receive a signal from the immobilizer starter key, meaning that the engine cannot be started, even if the starter switch is turned to the "START" position. If this happens, remove any keys and other metallic objects that are touching the immobilizer starter key, return the starter switch to the "ACC" or "LOCK" position, and try starting the engine again.
If you still cannot start the engine, have the vehicle inspected at an authorized dealer.


Z20929

- A metallic ring is on top of the handle of the engine immobilizer starter key.


Z20930

- The handle of the engine immobilizer starter key is in contact with a metallic part of another key.


Z20931

- The engine immobilizer starter key is placed on top of or near to another vehicle's engine immobilizer starter key.
- A key holder that emits radio waves or the remote control switch of the keyless entry system is placed on top of or near the engine immobilizer starter key.
- A card with an embedded IC chip or a mobile phone is held together with the engine immobilizer starter key.

The engine immobilizer starter key is an electronic device containing a signal transmitter. Bear in mind the following cautions:

- Do not bend the engine immobilizer starter key or subject it to strong shocks.
- Do not leave the engine immobilizer starter key in any part of the cab where it could be exposed to direct sunlight and get extremely hot (60°C (140°F) or higher).
- Do not store the engine immobilizer starter key near a magnet or any other source of magnetism.
- Do not disassemble or modify the engine immobilizer starter key.
- Keep magnetic keyrings and other magnetic items away from the engine immobilizer starter key.
- Do not place the engine immobilizer starter key near an audio player, personal computer, television set, or other device that is a source of magnetism.
- Do not clean the engine immobilizer starter key using an ultrasonic cleaner.

In the event that you lose an engine immobilizer starter key or wish to have a new one made, contact an authorized dealer. (A maximum of six engine immobilizer starter keys can be registered with a single vehicle.) You will need to take to the authorized dealer all the engine immobilizer starter keys that you have at the time.

Please note the following regarding registration of starter keys:

- When having the registration of a starter key deleted by an authorized dealer, also take to the dealer all the starter keys for which you do not wish to delete the registration.
- If you lose all of the starter keys, additional registration or deletion of registration of starter keys is not possible, and you must then purchase a new immobilizer control unit and a new starter key.

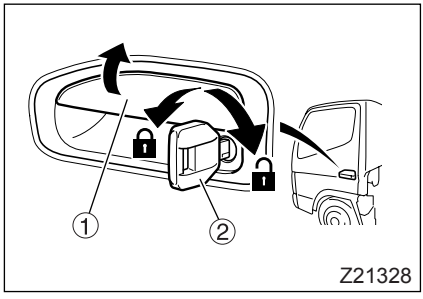
Doors

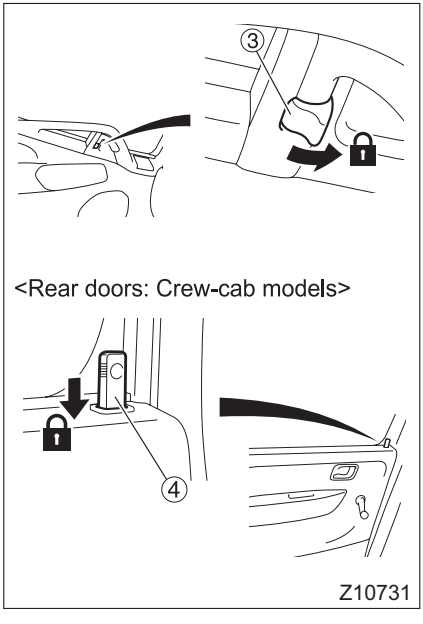
⚠ WARNING

- **To help prevent accidents, always check for vehicles and pedestrians approaching from behind before opening the doors.**
- **Driving with a door ajar can be very dangerous. Make sure the doors are completely closed before starting.**
- **Exercise caution when opening a door in strong wind. Otherwise, the wind could catch the door and suddenly blow it open.**
- **Exercise caution when opening a door on a downward slope. Otherwise, the inclination of the vehicle could cause the door to suddenly fall open.**
- **When leaving the vehicle, take with you any children or pets who was riding in the cab. Never leave children or pets in the cab. A child left in the cab could interfere with the vehicle, causing it to move or catch fire. Also, the cab gets extremely hot in sunshine and in hot weather so a child left in the cab could suffer heatstroke.**
- **When closing a door, be careful not to trap your hand or anything else.**

⚠ CAUTION

- **Only open or close a door slowly without applying undue force; otherwise the door components could be damaged.**
- **Do not swing on or hang anything heavy on any of the doors. Doing so could damage the door components.**



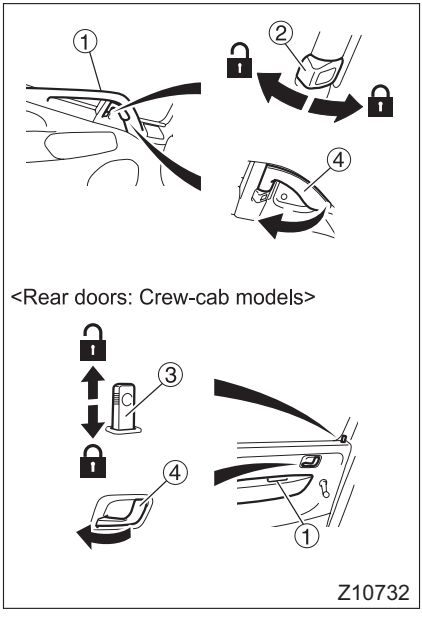


1 From the outside

- To open, pull the outer handle ① toward you.
- Use the starter key ② to lock or unlock the door.
- It is possible to lock each door without using the starter key. With the driver's door or assistant driver's door, push the lock knob ③ toward the front of the vehicle then pull the outer handle and keep it pulled as you close the door. With a rear door, push the lock knob ④ down then pull the outer handle and keep it pulled as you close the door.

NOTE:

- *Locking the driver's door using the starter key or lock knob also causes the assistant driver's door and the rear doors (Crew-cab model vehicles) to automatically lock.*
  On the other hand, unlocking the driver's door using the starter key or lock knob unlocks only the driver's door.
- *When you leave your vehicle, be sure to remove the starter key from the starter switch to prevent theft.*
- *Be careful not to lock the doors with the starter key inside the vehicle.*

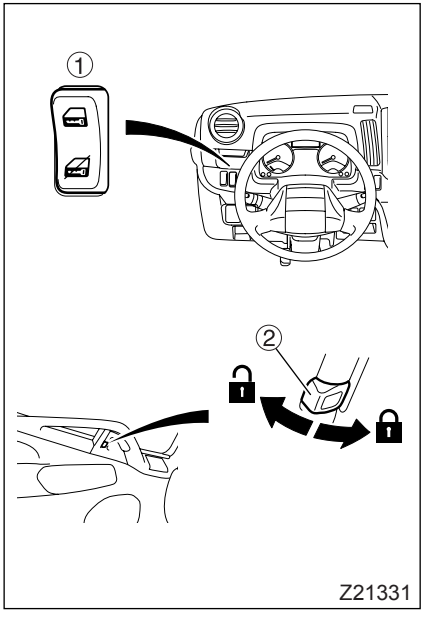


2 From the inside

- To close, use the door waist bar ①. Close the door completely.
- To lock the driver's door or assistant driver's door, push the lock knob ② toward the front of the vehicle. To lock a rear door, push the lock knob ③ down.
- To unlock and open the driver's door or assistant driver's door, push the lock knob toward the rear of the vehicle then pull the inner handle ④. To unlock and open a rear door, pull up the lock knob then pull the inner handle ④.

⚠ CAUTION

Closing the door by pulling any part other than the door waist bar could damage the door mechanism.



Central door locks

- When the side of the switch ① is pressed, all doors are locked. When the side of the switch is pressed, all doors are unlocked.
- When the lock knob ② on the driver's door is pushed forward, the assistant driver's door and the rear doors (Crew-cab model vehicles) are also automatically locked. If the lock knob on any door is subsequently pushed rearward, only that door is unlocked.
- When the driver's door is locked from outside using the starter key, the assistant driver's door and the rear doors (Crew-cab model vehicles) are also automatically locked. If the starter key is subsequently used to unlock any door, all the doors except that door remain locked.

Keyless entry system

1 The Grant of Equipment Authorization certificate for wireless transmitter (remote control switch)

TCB **TCB**

GRANT OF EQUIPMENT AUTHORIZATION

Certification

Issued Under the Authority of the

Federal Communications Commission

By:

Underwriters Laboratories, Inc.-Northbrook
333 Pfingsten Road
Northbrook, IL 60062

Date of Grant: 06/14/2010

Application Dated: 06/14/2010

U-shin Ltd
5217, Nakaze, Hamamatsu-shi
Shizuoka-ken, 434-0012
Japan

Attention: Satoru Gokuda , Acting Executive Manager
design Dept.2

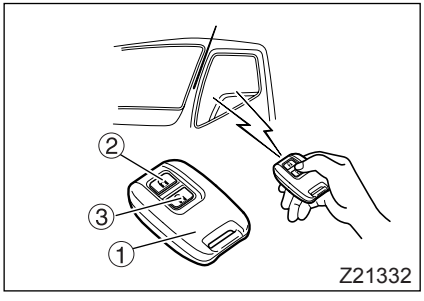
NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: OBIH7079TX
Name of Grantee: U-shin Ltd
Equipment Class: Part 15 Remote Control/Security Device Transceiver
Notes: Transmitter, Keyless Entry

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
	15.231	315.0 - 315.0			

1. FCC ID: OBIH7079TX
2. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
   - This device may not cause harmful interference.
   - This device must accept any interference received, including interference that may cause undesired operation.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



2 Keyless entry system

The keyless entry system allows you to lock/unlock the driver's door, assistant driver's door and rear doors (Crew-cab model vehicles) by operating the remote control switch ①.

⚠ WARNING

If you carry the keyless entry remote control switch with you when traveling on an airplane, avoid pressing any button on the switch. If you keep the switch in a suit pocket or somewhere like a bag, prevent the switch buttons from being accidentally pressed, since the radio-wave signals emitted from the switch could interfere with normal operation of the airplane.

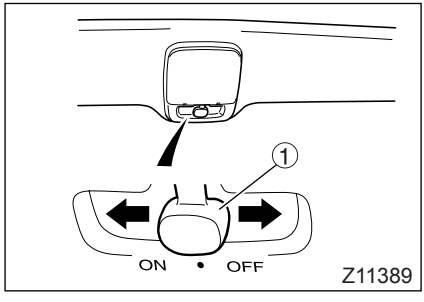
⚠ CAUTION

- **Do not expose the remote control switch to water, disassemble it, or apply shock by dropping it.**
- **Do not leave the remote control switch in a place that is exposed to direct sunlight or where the temperature rises to 60°C/140°F or above. Doing so will shorten the life or cause failure of the remote control switch.**
- **Do not remove the cover from the remote control switch unless you replace the battery. Removing it for no reason could lead to a remote control switch malfunction.**

3 How to operate the remote control switch

- Point the remote control switch toward the center of the cabin.
- Operate the remote control switch within 3 m (9.8 ft.) from the center of the cabin.
- Press the 🔒 button ② to lock all doors.
- Press the 🔓 button ③ once to unlock the driver's door. You can unlock the assistant driver's door and rear doors (Crew-cab model vehicles) if you press the 🔓 button one more time within 5 seconds.

NOTE:
The assistant driver's door and rear doors (Crew-cab model vehicles) do not unlock if you press the 🔓 button ③ more than 5 seconds after unlocking the driver's door.



- When you press the buttons, be sure to press them for at least one second. If a button does not work after one press, press the button again after one or two seconds.
- After locking the doors with the remote control switch, always check that the doors are locked by lifting the outside handle of a door.
- You can check the locking/unlocking of the doors by the flashing of the hazard lamps and the room lamp. Leave the switch of the room lamp ① "•" (in the center "•" position).
  When the doors are locked, the room lamp and the hazard lamps flash twice.
  When the doors are unlocked, the hazard lamps flash once and the room lamp lights up for about 10 seconds.
- If you do not open a door within 30 seconds after unlocking with the remote control switch, the doors will automatically be locked again.

NOTE:
- *The range in which you can operate the remote control varies somewhat depending on the surroundings, such as proximity to a TV tower, power station, broadcasting station, etc.*
- *If you lose the remote control switch or the switch does not work, please contact an authorized dealer. The dealer will produce two new spare remote control switches for you.*

The remote control switch does not work under the following conditions:
- *A door is open or incompletely closed.*
- *The starter key is in the starter switch.*

4 Replacing the remote control switch battery

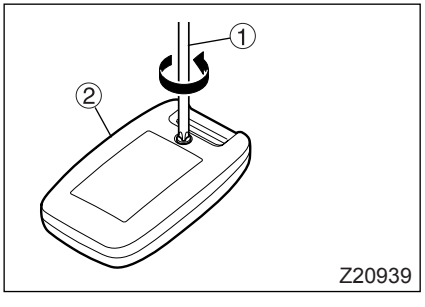
The battery may have run down if the remote control switch does not lock or unlock the doors upon pressing the corresponding button. Replacing the battery will solve the problem.

⚠ WARNING
- **Keep the batteries out of the reach of children. If a child swallows a battery, visit a doctor immediately.**
- **Do not disassemble, heat or drop the battery in water. Doing so could cause a fire or explosion.**

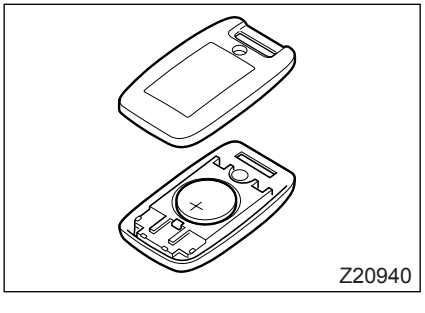
⚠ CAUTION

- **Use the designated standard type of battery. If the battery is replaced with an incorrect type, the battery could explode.**
- **Attach the battery with the "+" mark facing upward.**
- **Do not use a metal tool such as tweezers to replace the battery. Doing so could cause a short circuit.**
- **Dispose of used batteries in accordance with local regulations. Inconsiderate disposal could adversely affect the environment. For disposal, wrap the battery with tape, vinyl sheet, etc. for insulation so that the battery cannot contact other metal objects or be exposed to water.**
- **Do not expose the inside of the remote control switch to water, and keep it away from dirt and dust. Otherwise, the switch could fail.**

Designated battery	Quantity
Lithium battery CR2032	1



1. Use a crosshead screwdriver ① to turn the screw and remove the cover ②.



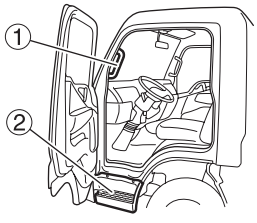
2. Place a new battery with the "+" mark facing upward.
3. Reattach the cover and the screw.
4. Operate the switch and check that the remote control works.

Entering and leaving the vehicle

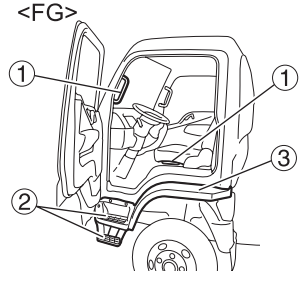
⚠ WARNING

- **Always use the step to climb into or down from the vehicle. Never put your foot on the wheel or tire since it could easily slip off.**
- **The step can become slippery in rain or snow. Firmly hold the grip while climbing into or down from the vehicle. Holding the grip is particularly important when snow has settled and frozen on the step.**
- **If the soles of your shoes are oily or greasy, you could slip when climbing down from the vehicle or when operating the brake or clutch pedal.**
  Wipe any oil and grease off the soles of your shoes before entering or leaving the vehicle.
- **Do not hold luggage or other items in your hands when entering or leaving the vehicle since this can be dangerous.**
- **Do not jump down from the vehicle. Jumping down from the vehicle could cause you to fall or sustain an injury.**
- **Take care when entering or leaving the vehicle on a slope or in a strong wind since the door could open or close suddenly.**

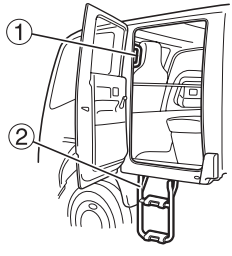
<FE>



<FG>



<Rear doors: Crew-cab models>



Z24667

⚠ CAUTION

- **Climb into and out of the cab by holding only the grip. If you hold onto any other parts of the vehicle, they could break or fail.**
- **When entering or leaving an FG model truck, do not place your feet or hands on the fender ③. The fender could suffer damage. Also, the fender can be dangerously slippery.**

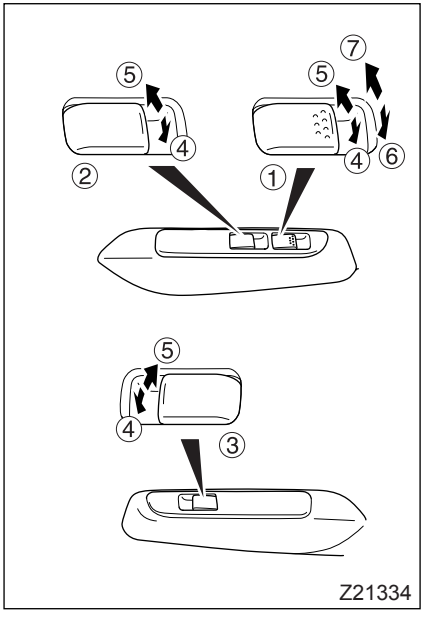
When climbing into and out of the cab, support your body by at least three points at a time by firmly gripping the handle ① and fully placing your feet on the steps ②.

Door window glass

⚠ WARNING
Do not allow a child to put its hands or head out of a window. The child's head or hands could hit an object outside the vehicle, and the child could be seriously injured in the event of hard braking.

1 Power window switches

⚠ WARNING
Always make sure that no one has their head or hands out of the window when closing it. A body part could be injured if caught in a closing window.
Never allow a child to open or close the window.



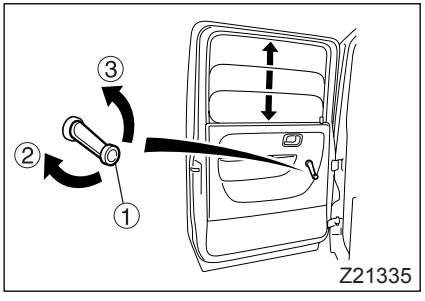
The power window switches function only when the starter switch is in the "ON" position.
On the driver's door, there are two switches: switch ① for controlling the driver's window and switch ② for controlling the assistant driver's window.
The switch for the driver's window has an auto function for fully opening or fully closing the window with a single touch of the switch.

③ Switch for assistant driver's window.
④ Gently press the switch to open the window. The window will move only while you are pressing the switch. It will stop when you release the switch.
⑤ Gently pull the switch to close the window. The window will move only while you are pulling the switch. It will stop when you release the switch.
⑥ To fully open the driver's window with a single touch of the switch, press the switch firmly. If you wish to stop the window part-way, give the switch a gentle pull.
⑦ To fully close the driver's window with a single touch of the switch, pull the switch firmly. If you wish to stop the window part-way, give the switch a gentle push.

⚠ CAUTION

Do not keep any door or window open in rainy weather, and be careful not to spill a drink on any of the window switches. If water or any other liquid gets on a window switch, it can cause a malfunction.

NOTE:
In cold weather, the auto function may not work temporarily. In this event, keep pushing or pulling the switch to fully open or close the window.



2 Window regulator handle <Crew-cab models>

Turn the window regulator handle ① to open or close the window.
② Open
③ Close

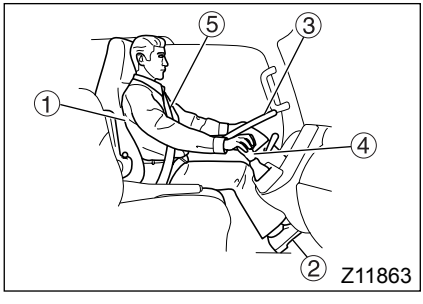
4. Seat and steering wheel adjustments

Seats 4-2
Seat belts 4-5
Steering wheel 4-9

Seats

⚠ WARNING

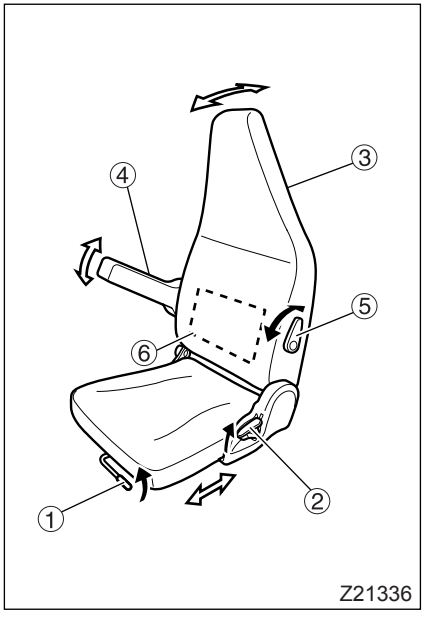
- **Adjusting the seat while the vehicle is in motion is dangerous as the seat may move more than you intend. Be sure to stop the vehicle and set the parking brake before performing any adjustment of the seat.**
- **After you have adjusted the seat, gently move or rock the seat to ensure that it is locked in the desired position.**
- **When adjusting the seat, keep your hands away from the bottom of the seat and from moving parts of the seat. Otherwise, you could suffer an injury by getting your hands and fingers trapped.**
- **When adjusting the angle of the seatback, keep your back or hand pressed against it. Otherwise, the seatback could suddenly return to its original position and injure you by hitting your face or other body parts.**



1 Driver's seat

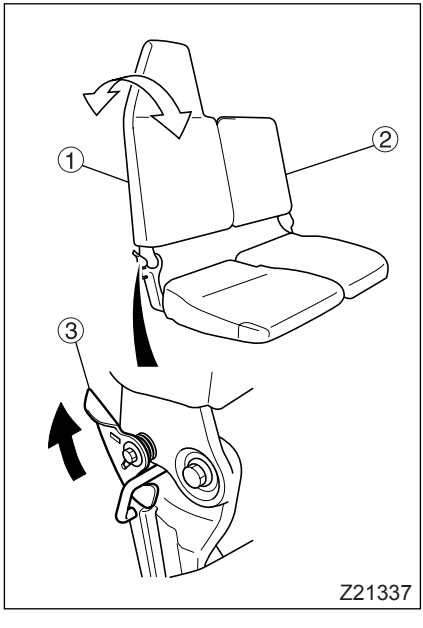
1.1 Correct driving position

- Before driving the vehicle, adjust the seat with reference to the following points:
  - ① Your back must touch the seatback, and you must be able to see the warning lamps and gauges.
  - ② You must be able to reach and firmly press the pedals.
  - ③ You must be able to operate the steering wheel and switches with ease.
  - ④ You must be able to operate the shift lever with ease.
  - ⑤ You must be able to fasten the seat belt correctly.
- Adjust the steering wheel to a position at which you can operate it comfortably with your arms slightly bent.



1.2 Making adjustments

- Slide seat forward or backward while holding slide adjustment lever ① raised. After making the adjustment, release the lever and move the seat back and forth slightly to lock it in position.
- To adjust the angle of the seatback ③, raise reclining lever ②.
- Lower the armrest ④ to use it.
- Lumbar support lever <option>
  Pull the lever ⑤ to adjust the hardness of the lumbar support ⑥ in the seatback as desired.

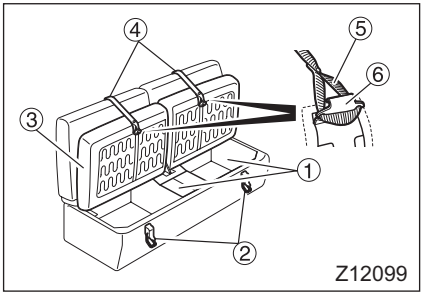


2 Assistant driver's seat

① Assistant driver's seat
② Center seat

It is possible to tip the seatback fully forward. With the lever ③ pulled, grasp the seatback at the top and tip it forward.
After returning the seatback to its original position, gently rock it to make sure it is locked in place.

NOTE:
If the lever ③ is difficult to move, pull it while pushing the top of the seatback rearward. Then you will be able to pull the lever easily.



3 Rear seat – Crew-cab models

Storage compartments ① are located under the rear seat. The rear seat can be folded up for access to them. When you wish to stow or remove something from these compartments, release the clamps ② at the base of the seat and raise the seat cushion ③. To retain the seat cushion, use the retaining bands ④ that are attached to the seatback. Fit the loop ⑤ at the end of each retaining band over the corresponding hook ⑥ on the seat cushion.

After using this storage, return the rear seat to the original position and lock it by fully fastening the clamps.

Seat belts

- To help prevent injury in the event of a sudden stop or accident, the driver and all passengers must wear their seat belts correctly.
- When wearing your seat belt, sit back in your seat with your back straight. If a seat belt is used incorrectly, its effectiveness is greatly diminished and it could aggravate injuries in the event of accident.
- For details of seat belt usage for children and pregnant women, refer to “Children and babies” and to “Pregnant women”. ⇨ P. 4-8

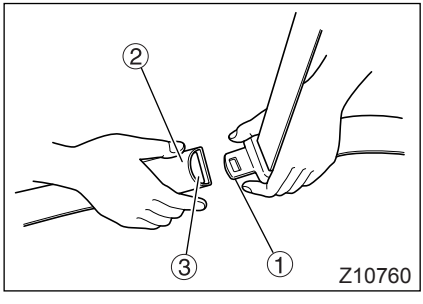
⚠ WARNING

- **Passengers must never be in the cargo area while the vehicle is in motion. Unless seated and properly belted up, the risk of injury is greatly increased.**
- **Seat belts should be worn as low as possible over the hips. Wearing a seat belt across the abdomen could be dangerous since undue pressure would be placed on internal organs in the event of a collision.**
- **Make sure that the seat belt is not twisted when fastening it. A twisted seat belt could be dangerous since its reduced width will apply a larger force to a smaller part of your body in the event of impact.**
- **Replace any seat belt that is cut or frayed, or if its buckle does not work properly.**
- **Never use a single seat belt for more than one person.**
- **It is dangerous to fasten or unfasten your seat belt while driving since the momentary diversion of your attention could lead to a serious accident. Always stop the vehicle first.**

- The left and right seats feature 3-point lap and shoulder belts with Emergency Locking Retractor (ELR), while the middle seat features a 2-point lap belt.

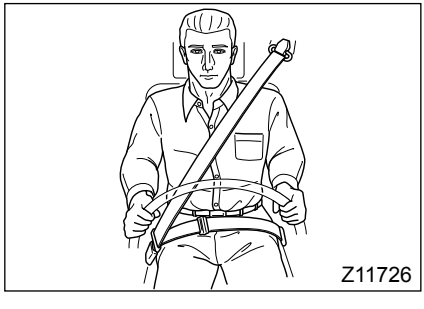
1 Lap and shoulder belts with ELR

NOTE:
It is not necessary to adjust the length of these seat belts.
An ELR seat belt extends and retracts automatically as its wearer moves but locks automatically for protection in the event of a sudden stop or shock.
The belt's tightness should be adjusted automatically. If there is any looseness, lift the shoulder belt gently and the mechanism will take up the slack. With the belt properly tightened, the risk of it slipping off in a collision is reduced.

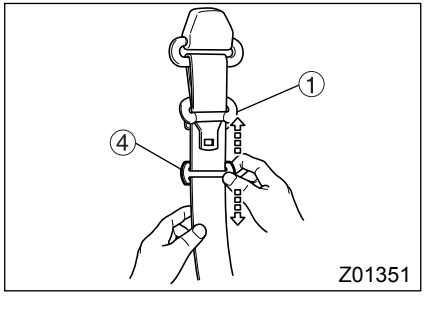


- **Fastening**

1. Hold tang ① and gently extend the belt. If the belt locks or is difficult to extend, let it retract and pull it gently again.
2. Take care that the belt does not become twisted. Insert the tang into the buckle ② until you hear a click.

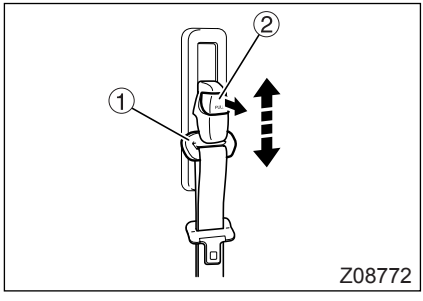


3. Pull on the tang to confirm that it is locked in.
4. Adjust the belt so it is across your hips and shoulder.



- **Unfastening**

1. Press the red button ③ to unlock the buckle.
2. The belt automatically retracts when unlocked. To prevent the tang causing damage or injury, hold it while the belt retracts.
3. Adjust the tang stopper ④ to locate the tang in an easy-to-reach position and prevent it from slipping.



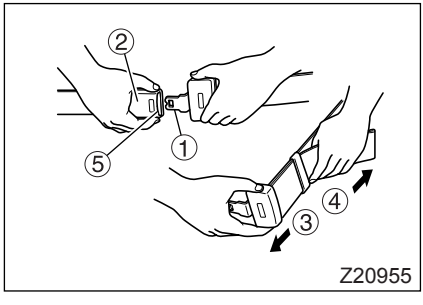
1.1 Seat belt anchor

<Driver's seat>

⚠ WARNING

The shoulder belt can be dangerous if worn across the neck. Adjust its position so that it does not cross over the neck.

Adjust the seat belt anchor ① upward or downward to ensure that the belt passes across your shoulder. You will need to keep the lock button ② pulled while moving the seat belt anchor downward. When the seat belt anchor has reached the desired position, release the lock button and jiggle the seat belt anchor up and down to make sure it is locked in place.



2 Lap belt

- **Fastening**

1. Take care that the belt does not become twisted. Insert the tang ① into the buckle ② until you hear a click.
2. Pull on the tang to confirm that it is locked in.
3. Adjust the belt so it is low across your hips.
4. To adjust the belt's length, hold the tang at 90° to the belt.
   Pull the belt end to shorten the belt or the tang to lengthen it.

   ③ To lengthen
   ④ To shorten

⚠ WARNING

For maximum protection in the event of an accident, the belt must not be loose. A loose belt could even aggravate injuries.

- **Unfastening**

1. Press the red button ⑤ to unlock the buckle.
2. When the belt is not in use, insert its tang into the buckle.

3 Children and babies

- When carrying children or babies, they must be restrained properly to minimize the risk of injury in the event of a sudden stop or accident. Never allow children to stand or kneel on the seats. For maximum safety, we recommend fitting and using a restraint system that complies with Federal Motor Vehicle Safety Standards.
  The use of child and/or baby restraint systems is mandatory in some states. Please abide by your state's regulations.
- Older children may sit on the regular seats and use the regular seat belts. However, make sure that the shoulder belts do not cross their necks or faces.

4 Pregnant women

Since a seat belt could exert undue pressure on the abdomen in the event of an accident, pregnant women should consult a doctor about the use of seat belts before riding in the vehicle.
A pregnant woman should wear her seat belt as low as possible across the hips, not across her abdomen.

5 Seat belt care

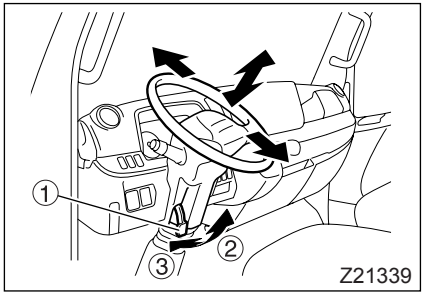
- Periodically, check the action of the mechanical parts such as the buckles, tangs, and emergency locking retractor (ELR) units. Check also for any damage that could stop the seat belts from functioning properly.
  Replace seat belt unit if there is any malfunction or damage.
- Replace any webbing that is cut, frayed, or otherwise damaged.
- Replace any seat belt that has received a shock due to a collision.
- Keep sharp or other potentially damaging objects away from the seat belts, especially the webbing.
- Keep the seat belts clean and dry. Use a mild soap and lukewarm water to clean seat belts. Such solvents as gasoline and thinner may seriously affect the strength of the webbing.
  ⇨ P. 12-94
- Never attempt to bleach or dye the seat belts, as this could weaken them considerably.
- Do not attempt to remove the seat belts or disassemble the ELR units.

Steering wheel

⚠ WARNING

- **After every adjustment, try to move the steering wheel back and forth to make sure that it is securely locked. Unless the lever returns to its original position, the steering wheel may move while the vehicle is in motion and cause an accident.**
- **Make adjustments with the vehicle stationary. Adjusting the steering wheel while driving is dangerous since it could detract from your concentration or cause the steering wheel to move more than desired.**

The steering wheel can be adjusted to the preferred height and tilted forward/backward. Adjust the steering wheel as well as the seat to the best positions for easy safe driving.



- Pull the lock lever ① then adjust the steering wheel to the height and angle that are most comfortable for you.
- Push the lock lever back in to securely retain the steering wheel.

② Adjust
③ Retain

5. Switches and controls

Arrangement of switches and controls 5-2
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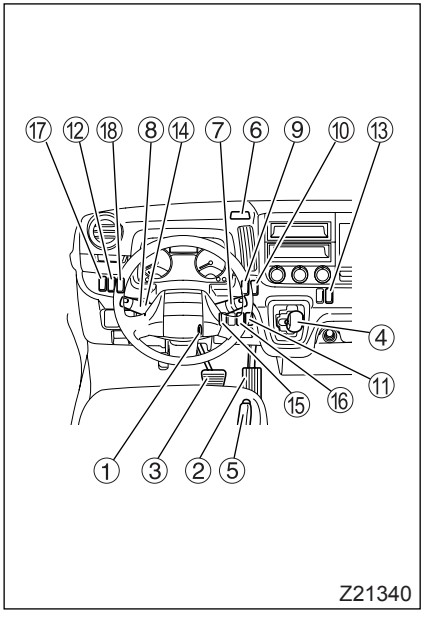


Arrangement of switches and controls

① Starter switch
② Accelerator pedal
③ Brake pedal
④ Gearshift lever
⑤ Parking brake lever
⑥ Hazard warning lamp switch
⑦ Combination switch
(wiper and washer switch, exhaust brake switch <option>)
⑧ Combination switch
(lighting switch, passing/dimmer switch, turn signal switch)
⑨ Front drive switch <FG> ⇨ P. 8-3
⑩ ECO mode switch
⑪ DPF cleaning switch
⑫ Central door lock switch ⇨ P. 3-8
⑬ Cruise control main switch
⑭ Cruise control SET/RESUME switch
⑮ Van body dome light switch
⑯ Mirror heater switch <option>
⑰ Power take-off switch <option>
⑱ Front fog lamp switch <option>

Starter switch

1 Starter switch position

⚠ WARNING

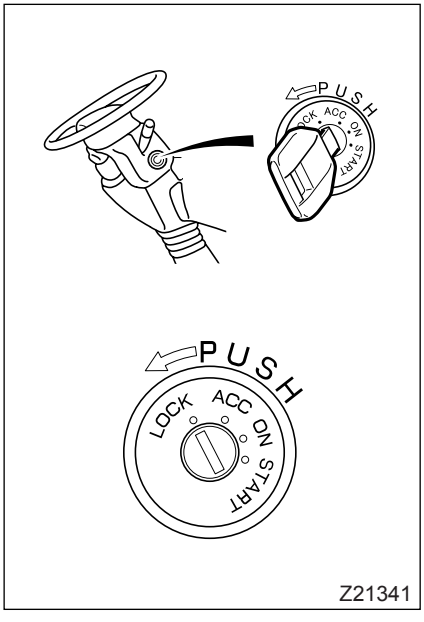
Never turn the starter switch to any position other than the "ON" position while driving the vehicle. Turning the starter switch to the "ACC" position would be dangerous because the engine would stop and the following problems would occur:

- **The braking force is severely reduced.**
- **The power steering system would stop working so the steering action would become extremely heavy.**
- **The fuel injection system can malfunction.**
- **The electric circuits for the warning lamps and meters would stop working, and electric parts could fail.**

When the starter key is removed from the starter switch, the steering wheel locks, making steering impossible.

⚠ CAUTION

- **Do not turn the starter switch to the "START" position while the engine is running. Doing so could damage the starter.**
- **The starter key cannot be turned from the "ACC" position to the "LOCK" position unless it is pressed in. Do not attempt to turn it by force. Keep the key pressed in while turning it from the "ACC" position to the "LOCK" position.**
- **If you park the vehicle over an extended period of time, always remove the key from the starter switch. Leaving the key in the "LOCK", "ON" or "ACC" position could run down the battery.**
- **Avoid using the "ACC" position for long periods, for example, for listening to the radio, as the battery could be completely discharged.**



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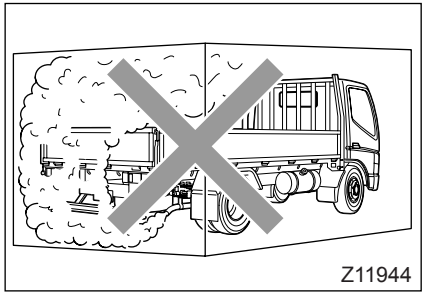
- LOCK
  The starter key can be inserted and removed in this position only. To place the key in the “LOCK” position, turn it to the “ACC” position then press it in. Keep it pressed in while turning it to the “LOCK” position. When the key is removed, the steering wheel locks.
  The lighting switch, hazard warning lamps, interior lamp, horn, central door locks and turn signal lamps can be used.
- ACC
  The engine is shut off or is not running in this position.
  The cigarette lighter can be used. Audio equipment (radio, etc.) installed and connected in the approved manner can also be used.
- ON
  The engine is running in this position.
  All electrical circuits are operable.
- START
  The engine is turned over and started in this position.
  Once the engine is running, release the key and the switch will automatically return to the “ON” position.

NOTE:
- *Turn the key only after inserting it fully in the starter switch.*
- *If you are unable to turn the key, gently turn the steering wheel clockwise and counterclockwise as you turn the key.*
- *The starter key can neither be turned to the “LOCK” position nor pulled out unless the gear-shift lever is in the “P” position.*

2 Starter key reminder alarm

A buzzer sounds if you open the door with the engine shut down and the key left in the starter switch. Remove the starter key from the switch and keep it with you whenever leaving the vehicle.

Starting the engine


Z11944

⚠ WARNING

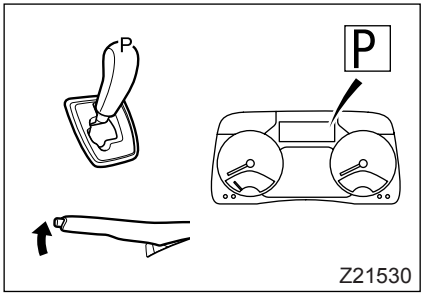
- **Do not start or warm up the engine in a garage or other closed area. When starting the engine or entering or leaving a garage, do not run the engine for longer than is necessary as the accumulation of exhaust gas in closed areas is very dangerous.**
  Exhaust emissions contain carbon monoxide (CO), which if breathed can cause unconsciousness or death.
- **If you smell exhaust gases inside the cab, inspect the exhaust pipe and check whether exhaust gases are leaking through holes or cracks caused by corrosion or damage. If exhaust gases are leaking, have the exhaust pipe inspected by an authorized dealer.**
  If exhaust gases that have leaked from the exhaust pipe come into the cab, ventilate the cab with fresh air by opening the windows fully or by opening the doors.
- **Make sure that there are no flammables under or behind the parked vehicle, especially close to the exhaust pipe. A fire could be started by the heat from the engine or exhaust pipe.**
- **When you start the engine, be sure to sit in the correct position on the driver's seat to wait for the engine to warm up. If you are leaning out of the door window or otherwise incorrectly seated and the vehicle suddenly moves, a serious accident could occur.**
- **Get into the habit of always using the right foot to depress the brake pedal. If you use the left foot, the pedal-pressing action will not be fully responsive, which could lead to an accident especially in the case of emergency braking. Before starting the engine, depress the accelerator pedal and brake pedal with your right foot to confirm the locations of these pedals.**

⚠ CAUTION

- **Do not try to push-start the engine. Push-starting the engine is impossible for this vehicle and could damage the transmission.**
- **Do not use ether or other vapor compound type starting aids. Use of such fluid on this engine could result in serious damage.**

NOTE:

- *After the engine has started, let it warm up for 1 to 2 minutes.*
- *Do not continue operating the starter for more than 15 seconds as this could damage it or discharge the battery.*
- *If you operate the starter continuously for 10 seconds and the engine still does not start, turn the starter switch to the "ACC" position and wait about 30 seconds for the battery to recover before performing the starting procedure again.*
- *On a vehicle that has not been operated for a week or more, or after replacement of engine oil or engine oil filter element, be sure to crank the engine before starting it.* ⇨ P. 5-8



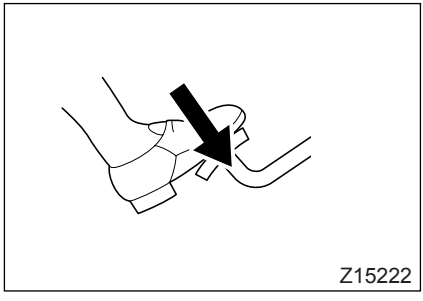
1 Pre-starting steps

1. Pull parking brake lever to fully apply the parking brake.
2. Place the gearshift lever in the "P" position. Make sure the gear position indicator displays "P".

NOTE:

Your vehicle's engine cannot be started unless the gearshift lever is in the "P" or "N" position. For safety, we recommend starting the engine with the gearshift lever in the "P" position. Use the "N" position only when absolutely necessary, for example, if the engine stops while the vehicle is on a railroad crossing.

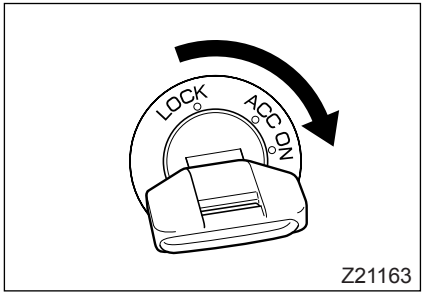
2 Starting procedure



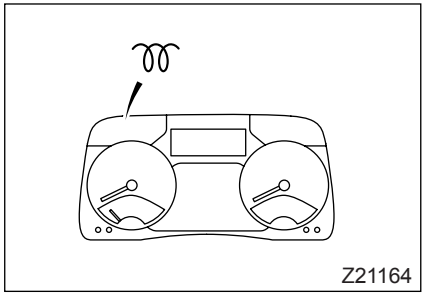
1. Depress the brake pedal fully.

⚠ CAUTION

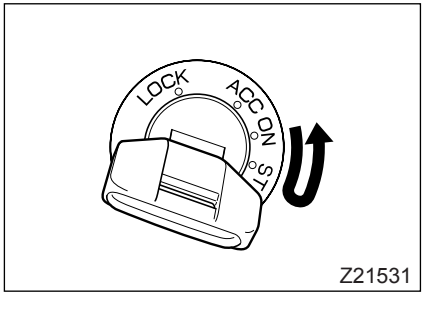
For safety, keep the brake pedal depressed until the engine has started.



2. Turn the starter switch to the “ON” position.



3. Check whether the ⟒ indicator lamp illuminates or not.



- **When the ⟒ indicator lamp does not illuminate**
  While holding down the brake pedal, turn the starter switch to the “START” position to start the engine.

- **When the ෆ indicator lamp illuminates**
  Wait until the indicator lamp goes out.
  While holding down the brake pedal, turn the starter switch to the “START” position to start the engine.

NOTE:
If the engine is difficult to start after the ෆ indicator lamp has gone out, there may be a problem with the engine preheating system. Have the vehicle inspected by an authorized dealer.

4. After the engine has started, let it warm up for 1 to 2 minutes. ⇨📖 P. 5-10

Engine idling speed
650 rpm

3 Starting the engine when vehicle has been parked over an extended period

When the vehicle is not used for a week or more or when the engine oil and oil filter are replaced, the engine becomes starved of oil. Before the engine is started, therefore, it must be cranked in accordance with the following procedure to distribute oil to its various components.

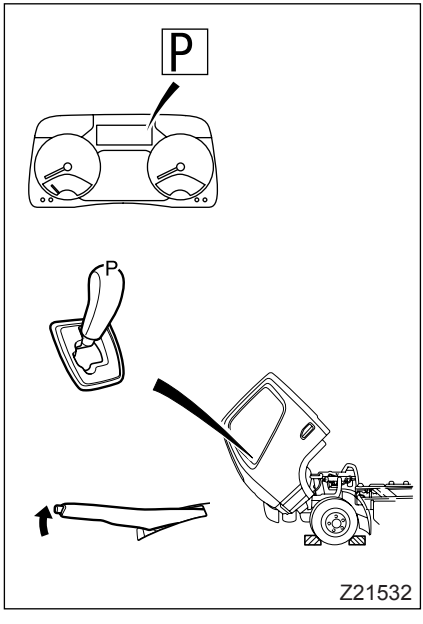
⚠ CAUTION

- **To ensure maximum safety, be sure to pull the parking brake lever fully to apply the parking brake and block the wheels with chocks thus preventing the vehicle from accidentally moving.**
- **Performing the cranking is of essential importance in terms of protecting the turbocharger.**

1. Pull the parking brake lever to fully apply the parking brake.
2. Place the gearshift lever in the “P” position.
3. Start the engine in the normal way. You do not need to wait for ⟲ indicator lamp to turn off.
4. Without depressing the accelerator pedal, place the starter switch in the “START” position and crank the engine for roughly 15 seconds.
   If the engine starts, release the starter key and do not depress the accelerator pedal for roughly 15 seconds.

4 Starting the engine with the cab tilted

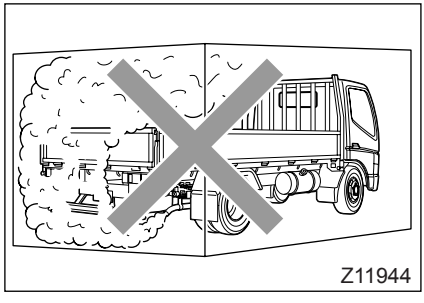
When you need to start the engine with the cab tilted for inspection or servicing purposes, be sure to observe the following safety precautions:



- Set the parking brake firmly and chock the wheels.
- Make sure the gearshift lever is placed in the “P” position and the gear position indicator shows “P”.
- Make sure nobody is near the engine compartment, then place the starter switch in the “START” position to start the engine.

Warming up the engine

Let the engine warm up for 1 to 2 minutes before starting the vehicle.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⚠ WARNING

- **Do not warm up the engine in a garage or other closed area. When starting the engine or entering or leaving a garage, do not run the engine for longer than is necessary as the accumulation of exhaust gas in closed areas is very dangerous.**
  Exhaust emissions contain carbon monoxide (CO), which if breathed can cause unconsciousness or death.
- **If you smell exhaust gases inside the cab, inspect the exhaust pipe and check whether exhaust gases are leaking through holes or cracks caused by corrosion or damage. If exhaust gases are leaking, have the exhaust pipe inspected by an authorized dealer.**
  If exhaust gases that have leaked from the exhaust pipe come into the cab, ventilate the cab with fresh air by opening the windows fully or by opening the doors.
- **Make sure that there are no flammables under or behind the parked vehicle, especially close to the exhaust pipe. A fire could be started by the heat from the engine or exhaust pipe.**

⚠ CAUTION

Racing the engine immediately after it has started causes excessive wear of cylinders and pistons, leading to engine malfunction. This also causes a fault in the turbocharger as the turbocharger starts spinning at high speed before engine oil is sufficiently distributed to its shaft. Be sure to warm up the engine to operating temperature before full load operation according to the procedures described here.

NOTE:

- *Idling the engine for long time wastes fuel, and is therefore detrimental to environmental protection and resource conservation. So shut down the engine whenever you leave the vehicle, even for a short period.*
  If you start to drive immediately after starting the engine (while the engine is still cold), you will encounter the following problems:
- *In a cold region, the extreme coldness of the engine will cause poor ignition of fuel, making the engine prone to knocking.*

- You may encounter any or all of the following conditions. They are due to the actions particular to the oxidation catalyst inside the muffler and do not indicate any abnormalities.
  - White smoke from the exhaust pipe when setting the vehicle in motion after idling the engine for a relatively long-time or when accelerating the vehicle.
  - White smoke from the exhaust pipe when the vehicle starts off immediately after the engine is started.
  - The exhaust smells irritating (with a vinegar-like odor).
- In cold months, the engine may operate at an idling speed higher than usual just after its start. The engine speed, however, will drop to a normal speed as the coolant warms up.
- Warm up the engine sufficiently, otherwise gear shifting may be sluggish.

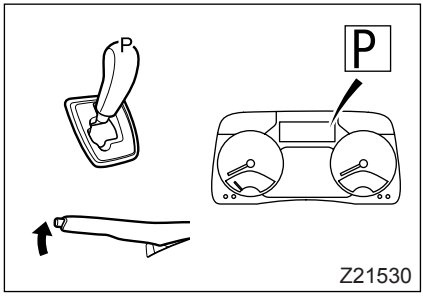
Stopping the engine

⚠ WARNING

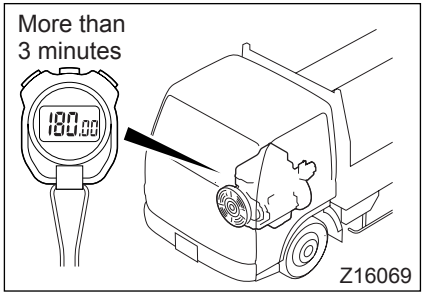
- **Never allow the vehicle to coast with the engine stopped as braking may be dangerously sluggish and extremely difficult steering may result. This may also cause trouble in the fuel injection system.**
- **The engine and exhaust pipe are extremely hot just after stopping the vehicle. Avoid parking the vehicle where the exhaust pipe could set fire to materials such as dry grass.**
- **Do not stop the engine for parking with the steering wheel fully turned to either direction. This will cause the power steering system pressure to drop, thus causing the steering wheel to return rapidly, possibly injuring you.**
- **Do not park on a slope. A vehicle parked on a slope can move uncontrollably and cause an accident.**
  If it is unavoidable to park the vehicle on a slope, do the following: Firmly apply the parking brake, place the gearshift lever in the "P" position, chock the wheels, and turn the steering wheel toward an obstruction (like a curb stone) for increased safety in case the vehicle moves.
- **Do not park the vehicle only with the gearshift lever placed in the "P" position; always firmly engage the parking brake. If you park the vehicle on a steep slope only by placing the gearshift lever in the "P" position without also engaging the parking brake, the gearshift lever will become extremely difficult to move or, in the worst case, it may be impossible to release the transmission from the locked state. If this happens, shift the gearshift lever into the "N" position and then, after making sure the gear position indicator shows "N", move the lever to the "D" position.**

⚠ CAUTION

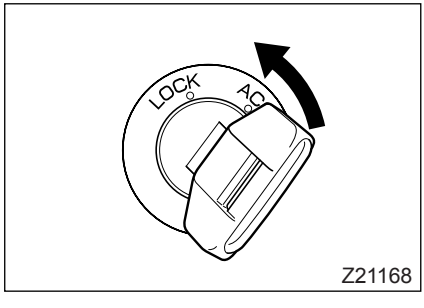
- **If you stop the engine immediately after uphill or high-speed driving, the oil supplied to the rotor shaft of the turbocharger will rise to an abnormally high temperature and the rotor shafts could seize up. To avoid this, run the engine at idle for at least 3 minutes instead of stopping it immediately.**
- **The engine should only be stopped from an idle. Stopping it at a high RPM could result in an engine malfunction.**



1. Hold down the brake pedal and apply the parking brake.
2. Place the gearshift lever in the “P” position. Make sure the gear position indicator shows “P”.

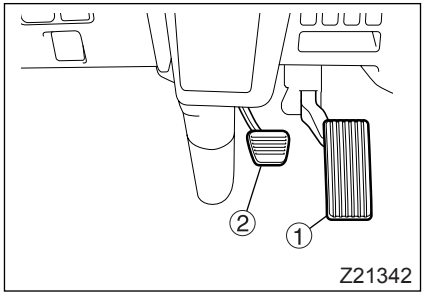


3. Allow the engine to idle for more than 3 minutes before stopping it.
   When the vehicle is in motion, engine parts become extremely hot. This is particularly true during uphill or high-speed driving. Therefore, let the engine cool down sufficiently by allowing it to idle for a time before stopping it.



4. Turn the starter switch to the “ACC” position to stop the engine.

Pedals



① **Accelerator pedal**

⚠ WARNING

If you use a floor mat, be sure to use a Mitsubishi Fuso genuine floor mat and lay it correctly. Do not lay the floor mat over the accelerator pedal or accelerator pedal stopper. Do not lay a floor mat over another floor mat. Failure to observe these instructions would be dangerous because the accelerator pedal could be prevented from returning when released.

Racing the engine also increases fuel consumption.

NOTE:
Depressing the brake pedal while depressing the accelerator pedal will increase safety, as this helps reduce the engine power.

② **Brake pedal**

⚠ WARNING

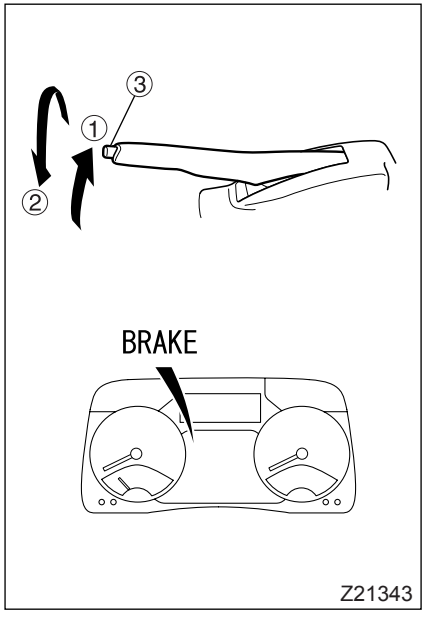
Do not allow empty beverage cans or other objects to get under the brake pedal as they may hinder the brake pedal operation, leading to an extremely dangerous situation. Keep the floor clear of empty beverage cans and other objects.

- If your vehicle is equipped with disc brakes and you notice squealing during braking, the disc brake pads have worn to the limit and must be replaced. Have the vehicle inspected by an authorized dealer.
- Use the brake pedal correctly. ⇨ P. 7-8

Parking brake lever

⚠ WARNING

- **Do not use the parking brake when driving except in an emergency, like if the service brakes have failed. Such use of the parking brake may make the vehicle spin or, at worst, roll over. It may also cause faults in vehicle components.**
- **Illumination of the BRAKE warning lamp does not necessarily indicate that the parking brake has been fully activated. Be sure to pull the lever all the way.**



1 Using the parking brake lever

① **Parking**

The parking brake is activated when the parking brake lever is fully pulled up. The BRAKE warning lamp lights up simultaneously.

② **Releasing**

Raise the lever slightly, press the end button ③, and lower the lever with the button still pressed. Make sure that the BRAKE warning lamp goes out.

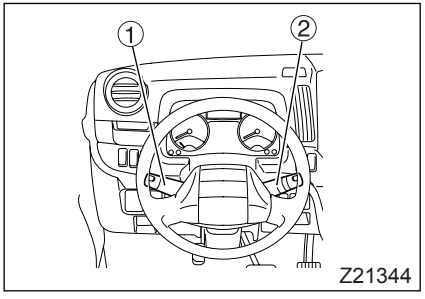
- When parking, please bear in mind the cautions in “Parking”, chapter 7. ⇨ P. 7-15

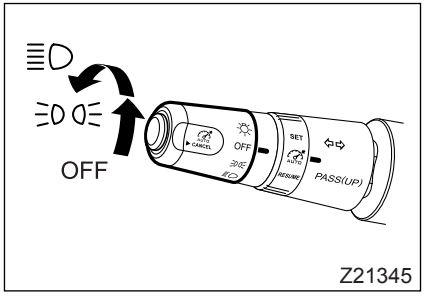
2 Parking brake alarm

- If you start the vehicle without releasing the parking brake and the vehicle moves at a speed of 12 km/h (7 mph) or higher, a buzzer will sound (beeps intermittently) 3 seconds later to warn you.
- If the buzzer sounds, immediately stop the vehicle in a safe place and then release the parking brake.

⚠ CAUTION

- **Before putting the vehicle in motion, completely release the parking brake lever and check that the BRAKE warning lamp is not illuminated. If you accidentally drove the vehicle with the parking brake applied, the parking brake would wear prematurely and overheat, leading to reduced effectiveness and the risk of a fire.**
- **When parking your vehicle on a slope, block the wheels with chocks for added safety.**





Combination switch

1 Arrangement of switches

① Lighting switch
Passing/dimmer switch
Turn signal switch
② Exhaust brake switch <option>
Wiper and washer switch

2 Lighting switch

⚠ CAUTION

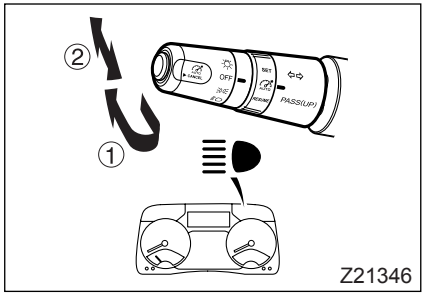
Keeping the headlamps on for a long period without the engine running can drain the battery, making the engine impossible to start.

The lighting switch can be used with the starter switch in any position.
Turning the knob at the end of the lever controls the illumination of lamps as follows:

	Identification, clearance and side marker, parking, tail, license, front fog <option> and meter illumination lamps	Headlamps
OFF position	Off	On*
≡D◇E position	On	On*
≡D position	On	On

*: Illuminated by daytime running light system

NOTE:
Even when the vehicle is operated with the lighting switch in the "OFF" or ≡D◇E position, the daytime running light system causes the low-beam headlamps to be lit. (The headlamps are dimmer than when activated using the lighting switch.) The ≡D indicator lamp is also lit. When the parking brake is applied or the engine is stopped, the headlamps and the ≡D indicator lamp go off.



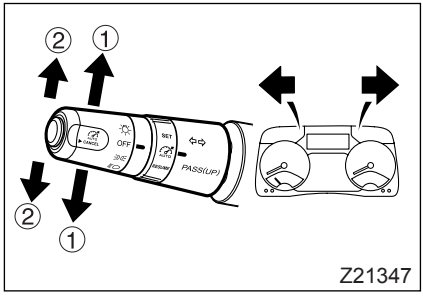
3 Passing signal/dimmer switch

① Passing signal

Pulling the lever up activates the high beams until the lever is released. Use this to flash a signal when overtaking another vehicle.

② Dimmer

With the headlamps illuminated, pushing the lever down activates the headlamp high beams and pulling it back to the original position reactivates the low beams. When the high beams are on, indicator lamp ≣◗ lights up.



4 Turn signal lamp switch

① Turn signal

Moving the lever forward or backward activates the corresponding turn signal causing it to flash. At the same time, the corresponding indicator lamp ◀ or ▶ flashes.

When the steering wheel is returned to the neutral position after a right or left turn, the switch automatically moves back to the neutral position and the lamp stops flashing. After making a moderate turn, however, the switch will sometimes not return automatically. In this case, put the switch in the neutral position by hand.

② Lane changer

Lightly pushing the lever forward or backward causes the corresponding turn signal lamp to flash while the lever is held in this position.

5 Exhaust brake <Option>

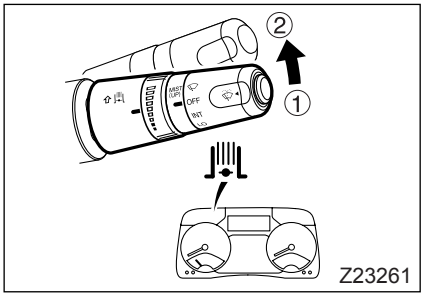
⚠ WARNING

Using the exhaust brake on a wet, frozen, snow-covered, or otherwise slippery road surface when the vehicle is lightly loaded or not loaded can cause the tires to slip on the road surface, resulting in a skid. Do not use the exhaust brake on slippery road surfaces.

The exhaust brake enhances engine braking. Use it as an auxiliary braking means on downhill stretches or during high-speed driving.

NOTE:

- *Do not keep the exhaust brake switch in the activation position at all times. Keeping the switch in the activation position worsens fuel consumption, as doing so causes the exhaust brake to work frequently and thus the vehicle to decelerate and accelerate frequently.*
  Save fuel by using the exhaust brake switch appropriately according to road and traffic conditions.
- *The exhaust brake is activated when the automatic DPF regeneration takes place during parking. The indicator, however, is not illuminated.*



- **Activation and deactivation of exhaust brake**

Pushing the lever forward activates the exhaust brake. While the exhaust brake is activated, the indicator lamp stays illuminated.

① Deactivated
② Activated

The exhaust brake will be temporarily disabled in the following conditions. Full functionality will be returned when the original conditions have been restored.

- The accelerator pedal is depressed.
- The gearshift lever is moved to “N”.
- The ABS is operating.

6 Wiper and washer switch

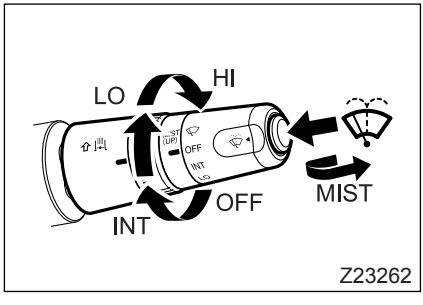
⚠ WARNING

In cold weather, warm the windshield with the heater before operating the washer since washer fluid could otherwise freeze onto the windshield and obstruct your vision.

⚠ CAUTION

- **Operating the wipers when the windshield is dry damages the windshield glass. If the glass is dry, be sure to squirt it with washer fluid before operating the wipers.**
- **Check nearby conditions before operating the washer switch. Washer fluid may splash around in some circumstances.**

- **Do not operate the wipers when the rubber parts of the wiper blades are frozen onto the windshield or otherwise stuck to the windshield. The wiper blades could get damaged, and the wiper motor could fail.**
- **When the wipers are not used for a long time, dust, sand, and other substances can collect between the wiper blades and windshield. Clean the wipers before using them. Otherwise, the windshield may get scratched.**
- **Operating the washer continuously for more than 20 seconds or when there is no fluid in the reservoir could burn out the washer motor.**



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- Rotating the grip at the end of the lever activates the windshield wipers in one of the following three modes:

INT: Wipers operate intermittently. By operating the interval control switch, the operating interval of wipers can be varied between 3 and 12 seconds.
LO: Wipers operate at a slow speed.
HI: Wipers operate at a rapid speed.
MIST: The wipers operate once when you flip up the lever toward you.

Replace the wiper blades if they start to work ineffectively. ⇨ P. 12-81

⚠ CAUTION

Wiper blade rubber can deteriorate over time, causing the wipers to work ineffectively and possibly causing the windshield to be scratched.

- Pressing the button sprays washer fluid onto the windshield.
- Refill the washer fluid reservoir before it is empty. ⇨ P. 12-82
- If there is washer fluid in the reservoir but none is sprayed when you operate the washer, the nozzles may be blocked. Clean the nozzles using a piece of thin wire. If fluid is still not sprayed when you operate the washer, have the vehicle inspected by an authorized dealer.

DUONIC®

The DUONIC® system combines the controls of the clutch, transmission and engine into a single system to achieve automatic clutch engagement/disengagement and gear shifting during start-out and driving.
The clutch mechanism incorporates two clutch systems (called a “dual-clutch”), allowing the DUONIC® system to provide smooth gear shifting with minimum shock.

NOTE:
DUONIC® is a registed trademark of Daimler AG.

1 What you should know before you can safely and properly operate your vehicle

1.1 Before starting the engine
Before starting the engine, step on the accelerator pedal and brake pedal with your right foot to check and get a feel for their locations.

1.2 Creep
Creep refers to a very slow vehicle movement that occurs when the gearshift lever is placed in a driving position and the accelerator pedal is released. This occurs due to the power transmitted from an idling engine.

⚠ CAUTION

- **To prevent creep, keep the brake pedal firmly pressed when moving the gearshift lever to the “R” or “D” position. Do not release the parking brake until you have finished the shift operation.**
- **Continue depressing the brake pedal fully while the position indication on the gear position indicator is still flashing. This is especially important when starting on an uphill road. As the gear is not yet engaged and thus the creep effect is not available while the display is flashing, the vehicle may move backward if the brake pedal is released, which could cause an accident.**

1.3 Brake pedal operation

⚠ CAUTION

Get into the habit of always using the right foot to depress the brake pedal. If you use the left foot, the pedal-pressing action will not be fully responsive, which could lead to an accident especially in the case of emergency braking. Before starting the engine, step on the accelerator pedal and brake pedal with your right foot to confirm the locations of these pedals.

1.4 Leaving the vehicle with the engine running

Before leaving the vehicle, make sure the parking brake is firmly applied, the gearshift lever is in the “P” position, and the gear position indicator is showing “P”. If you open the door with the engine running and the gearshift lever in the “D” position, a buzzer will sound continuously to warn you.
If you place the gearshift lever in the “R” position with the engine running, the buzzer will sound intermittently.

1.5 Parking

Park the vehicle on a level, flat surface if possible. When parking the vehicle, do the following:
While keeping the brake pedal depressed, firmly apply the parking brake and then place the gearshift lever in the “P” position.
If it is unavoidable to park the vehicle on a slope, firmly engage the parking brake while keeping the brake pedal depressed, and then place the gearshift lever in the “P” position. In addition, chock the wheels.

1.6 Selecting the “R” (reverse) position

Bring the vehicle to a complete stop before placing the gearshift lever in the “R” position. The “R” position cannot be selected while the vehicle is moving.

1.7 Towing

If it becomes necessary to tow the vehicle, observe the following. Doing otherwise could damage the DUONIC® system. Never attempt to push-start the engine.

- On an FE model vehicle, disconnect the propeller shaft or rear axle shafts, or get the towing vehicle to raise the rear wheels before towing the vehicle.
- On a part-time 4-wheel drive vehicle, raise the front wheels and disconnect the propeller shaft at the rear before towing the vehicle.

1.8 Driving on a slippery road

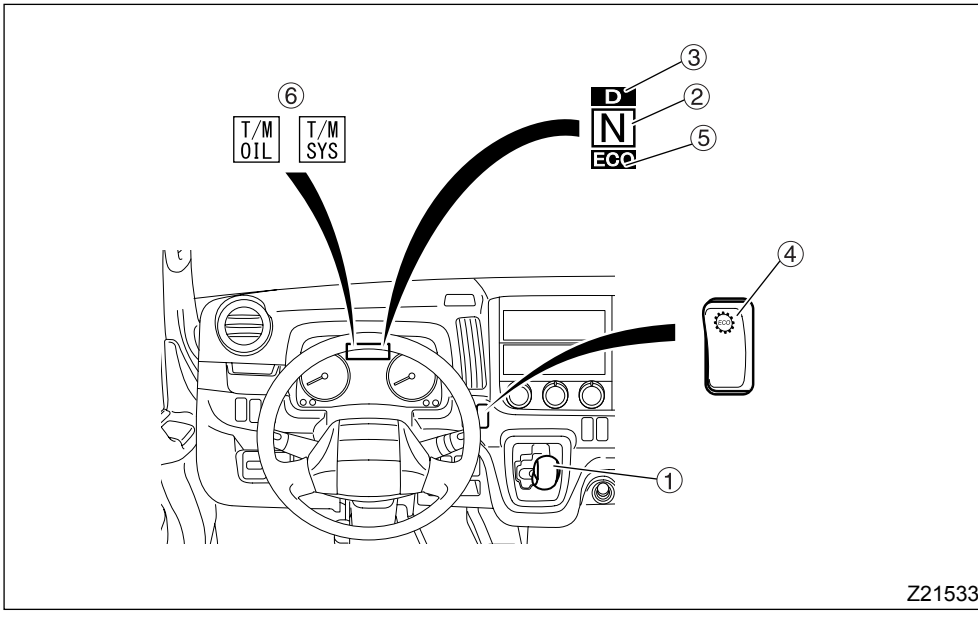
⚠ WARNING

Use the manual shift mode when driving on slippery surfaces (such as a wet or frozen road). Using the automatic shift mode on slippery roads could cause an accident for the following reasons:
Skidding is more likely to be caused by automatic shift-downs that take place normally when driving in the automatic shift mode. Skidding also may occur easily due to automatic shift-downs following full or quick operation of the accelerator pedal.
Even while driving using the manual shift mode, the vehicle is likely to skid if you suddenly depress the accelerator pedal or quickly shift down the gear.

1.9 Starting on uphill roads

The vehicle may move backward when starting on an uphill road even though the creep effect helps to reduce backward movement. If the vehicle seems likely to move backward, be sure to also use the parking brake.

2 Controls and indicators



① **Gearshift lever**
Used to control the operation of the DUONIC® system. Move the lever until it completely engages in each position.

② **Gear position indicator**
Indicates the selected gear of the transmission.

③ **Automatic shift mode indicator**
This indication appears while driving in the automatic shift mode.

④ **ECO mode switch**
When this switch is turned on, the economy mode works to make early up-shifts to improve fuel economy.
This switch is usable when driving in the automatic shift mode.

⑤ **ECO mode indicator**
This indication appears when the economy mode is activated.

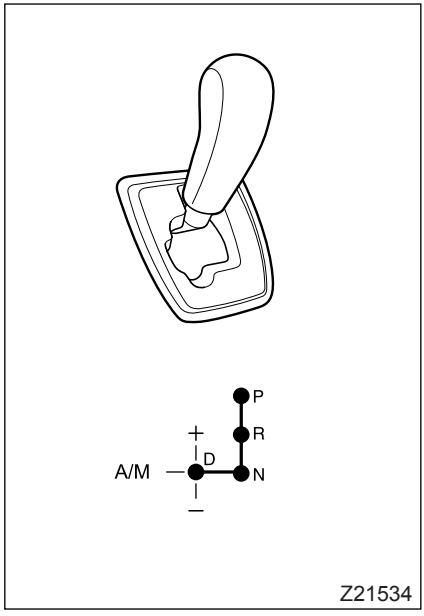
⑥ **Warnings**
If there is a problem with the DUONIC® system, one of the following warnings appears on the multi-information display.

- T/M SYS (red)
  Indicates that the DUONIC® system is faulty.
- T/M OIL (red)
  Indicates that the clutch control fluid or the clutch temperature is abnormally high.

- T/M SYS (amber)
  Indicates that the DUONIC® system is faulty (but the vehicle may be driven if automatic or manual gear shifting is possible).

3 Gearshift lever

This lever is used to control the operation of the DUONIC® system. Move the lever until it completely engages in each position.



3.1 How to operate the gearshift lever

- To switch from the automatic shift mode to the manual shift mode, use either of the following methods with the gearshift lever in the "D" position:
  - Move the gearshift lever to the "+" or "–" position.
  - Push the gearshift lever into the "A/M" position.

  The indication "D" on the multi-information display disappears when the manual shift mode is engaged.
- To switch from the manual shift mode back to the automatic shift mode, push the gearshift lever into the "A/M" position from the "D" position. The automatic shift indicator shows "D" when the automatic shift mode is engaged.
- When you release the gearshift lever after moving it to the "+", "–" or "A/M" position, it will return to the "D" position.

NOTE:

- *Unless the engine is started, operating the gearshift lever has no effect on the DUONIC® system.*
- *The following gearshift lever movements are possible only while the brake pedal is depressed: "P" to "R"; "N" to "R"*
- *If the battery runs down, the gearshift lever will stay locked and cannot be operated even if the brake pedal is depressed. At this time, if the gearshift lever is in the "P" position, the vehicle cannot be moved.*
  Restore the battery by any of the following methods:
  - *Charge the battery.*
  - *Replace the battery.* ⇨ *P. 12-83*
  - *Connect the dead battery to the booster battery of another vehicle with booster cables.*
    ⇨ *P. 13-29*

3.2 Gearshift positions

P: Parking

- Use this position when starting or warming up the engine of a stopped or parked vehicle.
- The starter key can be removed when the gearshift lever is in this position.
- Use this position when using the PTO.

R: Reverse

- Use this position to reverse the vehicle.
- The backup lamps come on and a buzzer sounds simultaneously when the gearshift lever is in this position.

N: Neutral

- No power is transmitted to the wheels.
- Although you can also use this position when starting the engine, we strongly recommend using the “P” position for increased safety.

D: Drive

- This is the position for driving.
- In the automatic shift mode, gearshifts take place automatically as shown below in accordance with the vehicle loading and speed.

Gear change scheme
1 ⇔ 2 ⇔ 3 ⇔ 4 ⇔ 5 ⇔ 6

NOTE:
The DUONIC® system automatically selects the starting gear according to the steepness of the slope and the vehicle loading. It selects 2nd on a level or downhill road and 1st on an uphill road.

- Moving the gearshift lever from “D” position to the “A/M”, “+”, or “–” position causes the manual shift mode to be selected.

A/M: Automatic/manual shift mode

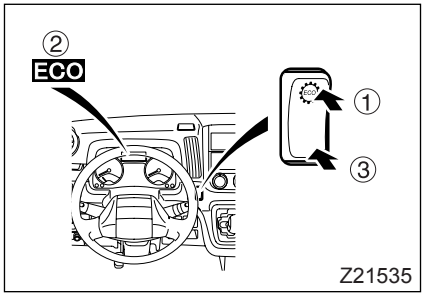
Each time you push the gearshift lever into this position, the gearshift mode switches between the automatic shift mode and manual shift mode.

+: Upshift

- Use this position for manual upshifts.
- The gear shifts up by one gear each time you move the gearshift lever to this position from the “D” position.

–: Downshift

- Use this position for manual downshifts.
- The gear shifts down by one gear each time you move the gearshift lever to this position from the “D” position.



4 ECO mode switch

You can use the ECO mode switch only while driving in the automatic shift mode.
When the ECO mode is turned on using this switch, the DUONIC® system applies the following control:

- Makes upshifts earlier than when the ECO mode is off.
- Makes the gear less likely to shift down when the accelerator pedal is depressed.
- The ECO mode is activated when the "ON" side ① of this switch is pressed. The multi-information display will then indicate "ECO" ② on the screen. Press the "OFF" side ③ of the switch to deselect the ECO mode.

NOTE:

- *The ECO mode should be used when the vehicle is zero- to half-loaded and driven on relatively level roads.*
- *Turn off the ECO mode switch when the vehicle is fully loaded or is driven on uphill or downhill roads.*

5 Driving tips

⚠ WARNING

- **When you start the vehicle, never operate the gearshift lever while stepping on the accelerator pedal. The vehicle will suddenly lurch forward and could cause a serious accident. Be sure to depress the brake pedal whenever operating the gearshift lever while starting the vehicle.**
- **Never race the engine when the vehicle is stopped. If the gearshift lever happens to have been placed in any position other than "P" or "N", the vehicle will suddenly lurch and could cause a serious accident.**

⚠ CAUTION

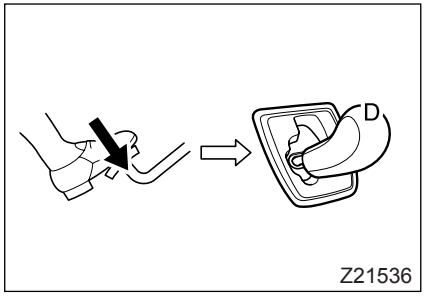
- **Always fully depress the brake pedal when moving the gearshift lever to the "D" or "R" position. Otherwise, the vehicle will creep and could cause an accident.**

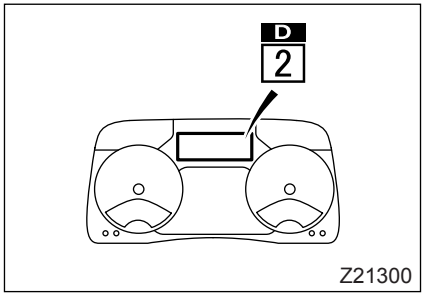
- **On downhill roads, never start the vehicle with the gearshift lever in the “N” position. Be sure to place the lever in the “D” position instead. If the gearshift lever is in the “N” position, engine braking does not work, which increases the risk of an accident.**
- **If there are steps or other sharp changes in height on the surface in front of the vehicle, depress the accelerator pedal carefully when starting the vehicle. Recklessly stepping on the accelerator pedal is dangerous as the vehicle could move unexpectedly quickly.**
- **Do not pump the accelerator pedal when starting the vehicle, as this will increase the chance of damaging the transmission.**
- **When starting the vehicle especially on a slope, do not use a forward gear if the vehicle is moving backward or do not place the gearshift lever in the “R” position if the vehicle is moving forward. Such actions will increase the chance of damaging the transmission.**
- **On an uphill road, avoid stopping the vehicle by only using the accelerator pedal. Otherwise, a slipping or broken clutch may result. Be sure to stop the vehicle using the brake pedal on an uphill road.**
- **Do not operate the accelerator pedal when the gearshift lever is in the “D” or “R” position and the service brakes or parking brake are applied. Failure to follow this instruction will damage the transmission.**
- **Do not move the vehicle very slowly repeatedly to drive over a high step or curb. Otherwise, a slipping or broken clutch may result.**

5.1 Starting

- **Automatic shift mode**

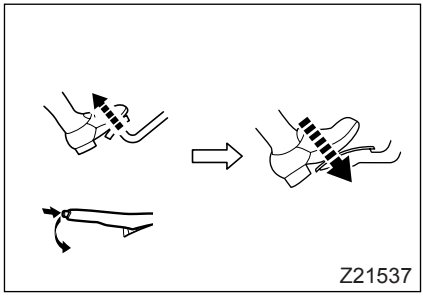
1. While keeping the brake pedal fully depressed, place the gearshift lever into the “D” position.





2. Check that the multi-information display is showing "D" and that the gear position indicator is showing "1" or "2".

NOTE:
- *The DUONIC® system selects the starting gear automatically according to the steepness of the slope and the vehicle loading. It selects 2nd on a level or downhill road and 1st on an uphill road.*
- *Start the vehicle only when the gear position indicator indicates "1" or "2". When starting after the ABS has been activated, the system may take longer than usual to engage the starting gear.*
- *The starting gear engagement is still in progress while the indication on the gear position indicator is flashing. Do not release the brake pedal at this time.*



3. Release the parking brake. Gradually release the brake pedal and then slowly depress the accelerator pedal to start the vehicle.

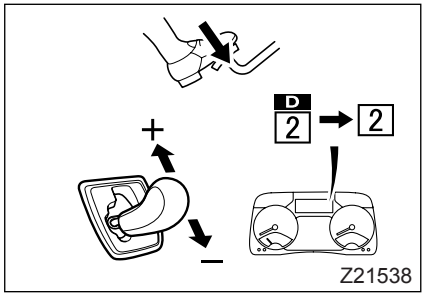
- **Manual shift mode**

You can select 1st, 2nd or 3rd as the starting gear.

⚠ CAUTION

- **Except when starting on a downhill road, do not select 3rd gear. Selecting 3rd gear when starting in any other condition could cause a transmission failure. While starting, the system automatically prevents the 4th and higher gears from being selected.**

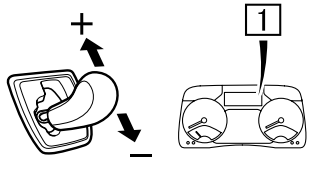
- **Start the vehicle only when the gear position indicator indicates “1”, “2” or “3”. When starting after the ABS has been activated, the system may take longer than usual to engage the starting gear.**



Z21538

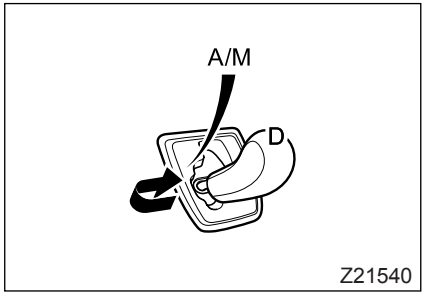
1. Fully depress the brake pedal.
2. Move the gearshift lever from the “D” position to the “+” or “–”position.
- The gear shifts up by one gear each time you move the lever to “+”.
- The gear shifts down by one gear each time you move the lever to “–”.

Example: When 1st gear is selected



Z21539

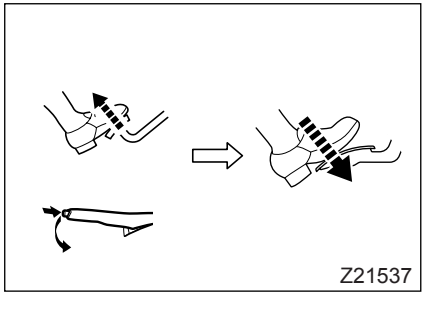
The “D” indication on the multi-information display disappears when the manual shift mode is engaged.



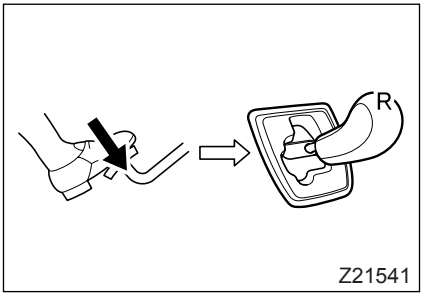
Z21540

The gearshift mode also can be changed between “manual” and “automatic” each time you push the gearshift lever from the “D” position into the “A/M” position.

NOTE:
The starting gear engagement is still in progress while the indication on the gear position indicator is flashing. Do not release the brake pedal at this time.


Z21537

3. Make sure the gear position indicator is showing the desired gear.
4. Release the parking brake. Slowly depress the accelerator pedal while gradually releasing the brake pedal to start the vehicle.



5.2 Reversing

1. While holding the brake pedal fully depressed, place the gearshift lever into the “R” position.
2. Check that the gear position indicator shows “R”.

NOTE:

- *While the vehicle is moving, the reverse gear does not engage even if you place the gearshift lever into the “R” position. Always place the gearshift lever into the “R” position when the vehicle is stopped.*
- *Reverse gear engagement is still in progress when the indication on the gear position indicator is flashing. Do not release the brake pedal at this time.*

3. Release the parking brake. Slowly depress the accelerator pedal while gradually releasing the brake pedal to reverse the vehicle.

6 Driving

It is recommended to use the automatic shift mode for ordinary driving to reduce your workload.

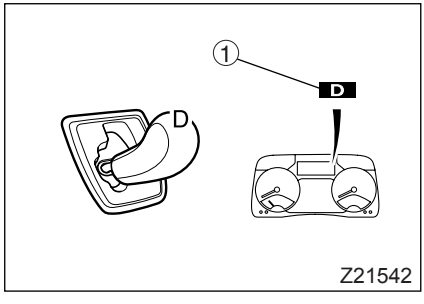
⚠ CAUTION

- **Never place the gearshift lever into the “N” position while driving. This could result in an accident as engine braking is not available, and could damage the transmission.**
- **Use the manual shift mode when driving on slippery surfaces (such as a wet or frozen road). Using the automatic shift mode on slippery roads could cause an accident for the following reasons:**
  Skidding is more likely to be caused by automatic shift-downs that take place normally when driving in the automatic shift mode. Skidding also may occur easily due to automatic shift-downs following full or quick operation of the accelerator pedal.
  Even while driving using the manual shift mode, the vehicle is likely to skid if you suddenly depress the accelerator pedal or quickly shift down the gear.

NOTE:

- *In cold weather when the temperature of the transmission oil is low, you may experience slower automatic shift-downs from 3rd to 2nd and from 2nd to 1st than usual. This does not indicate any problem; shifting will return to normal speed as the oil temperature rises.*
- *There could be an instance when gear engagement is rather slow and you notice a delay in gear shifting. If this happens repeatedly, please have the vehicle inspected by an authorized dealer.*

6.1 Driving in automatic shift mode

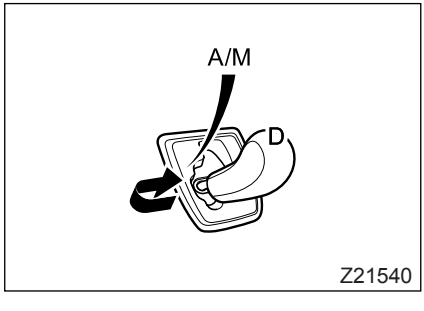


If you pull away and drive in the automatic shift mode, gearshifts will take place automatically as shown below in accordance with the accelerator-pedal position and vehicle speed. The automatic shift mode indicator ① will be shown.

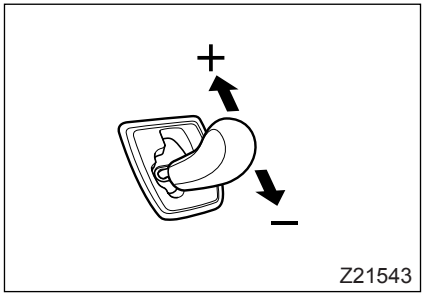
Gear change scheme
1 ⇔ 2 ⇔ 3 ⇔ 4 ⇔ 5 ⇔ 6

NOTE:
The starting gear is automatically selected according to the steepness of the slope and the vehicle loading. The vehicle will start in 2nd on level and downhill roads and in 1st on uphill roads.

6.2 Driving in manual shift mode



Move the gearshift lever from the “D” position to the “A/M” position to switch from the automatic shift mode to the manual shift mode. You can also switch to the manual shift mode by moving the gearshift lever in the “+” or “–” direction.
The manual shift mode will then be set and the automatic shift indicator “D” will disappear from the multi-information display.

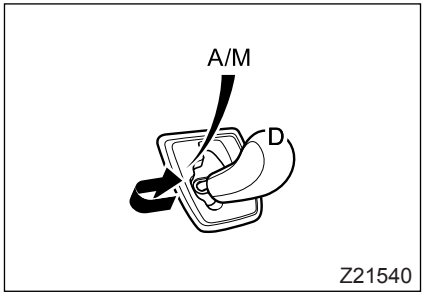


In the manual shift mode, the gear is fixed at the presently selected one even when the vehicle speed changes. So you should change the gear appropriately according to the vehicle speed.

- The gear shifts up by one gear each time you move the gearshift lever to the "+" position.
- The gear shifts down by one gear each time you move the gearshift lever to the "–" position.
- If the gearshift lever is moved to the "+" or "–" position multiple times, the gear will change upward or downward as long as the engine is operating within the normal rpm range.

NOTE:

- *If the system judges that a manual upshift or downshift would put the engine speed out of the normal rpm range, the gearshift does not take place. If the gear does not change when you operate the gearshift lever, first adjust the vehicle speed using the accelerator or brakes and then operate the gearshift lever again.*
- *In cold weather when the temperature of the transmission oil is low, shifting down may be prohibited.*
  If the gear does not change when you operate the gearshift lever, first reduce the vehicle speed using the accelerator or brakes and then operate the gearshift lever to downshift again.



Push the gearshift lever into the "A/M" position if you want to change the gearshift mode from the manual shift mode to the automatic shift mode.

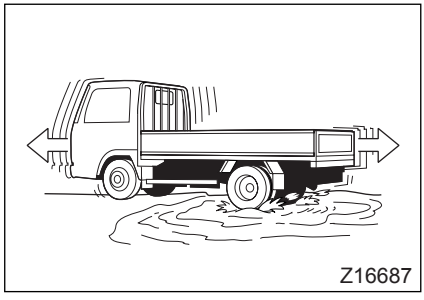
7 Moving out of mud, snow or sand

⚠ WARNING

Be sure to check safety around the vehicle before moving the vehicle by using fore-and-aft rocking motion. Failure to do so could result in an accident.

⚠ CAUTION

Do not try to free a stuck vehicle for more than 5 minutes. Prolonged rocking motion will damage the transmission or the clutch, as the transmission oil or the clutch quickly heats up to a dangerous temperature.


Z16687

Move the gearshift lever between the “D” and “N” positions to rock the vehicle and thereby get it out of the mud, snow, or sand.

8 Short stops

⚠ WARNING

Never race the engine when the vehicle is stopped. If the gearshift lever happens to have been placed in any position other than “P” or “N”, the vehicle will suddenly lurch and could cause a serious accident.

⚠ CAUTION

On an uphill road, avoid stopping the vehicle by only using the accelerator pedal, as this could cause slipping or a broken clutch. Always use the brake pedal to stop the vehicle on an uphill road.

When you stop the vehicle to wait at signals or in a traffic jam, the clutch automatically disengages as the vehicle slows down and an automatic gear change takes place as follows:

- When driving in the automatic shift mode, the 2nd gear will be automatically engaged. On uphill roads, the 1st gear may be engaged depending on the steepness of the slope and the vehicle loading.
- When driving in the manual shift mode, the 2nd gear will be automatically engaged if 3rd or higher gear was selected before stopping. On uphill roads, the 1st gear may be engaged depending on the steepness of the slope and the vehicle loading.
- Keep the brake pedal fully depressed while stopped.
- In the case of a prolonged stop, you can release the brake pedal after engaging the parking brake and placing the gearshift lever in the “P” position.

9 Leaving the vehicle with the engine running

Leave the vehicle after confirming the following:

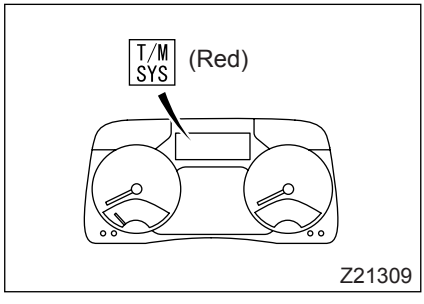
1. The parking brake is firmly applied.
2. The gearshift lever is in the “P” position.
3. The gear position indicator is showing “P”.

NOTE:
A buzzer sounds continuously if the driver’s door or assistant driver’s door is opened while the engine is running and the gearshift lever is in the “D” position. The buzzer stops if the gearshift lever is moved to the “P” or “N” position, the engine is stopped, or the door is closed. If the gearshift lever is moved to the “R” position while the engine is running, the buzzer sounds intermittently. Always stop the engine with the gearshift lever in the “P” position.

10 If a transmission system warning is displayed

The multi-information display indicates a warning if there is a problem with the DUONIC® system. If a transmission system warning is displayed, take necessary action according to the following instructions.

10.1 T/M SYS warning (red)

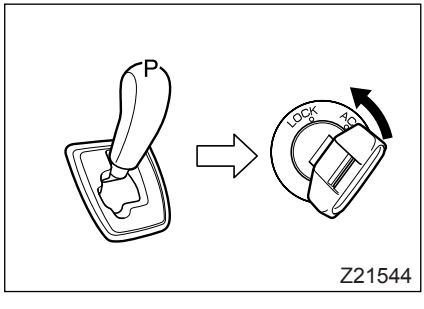


- **If this warning appears while driving:**

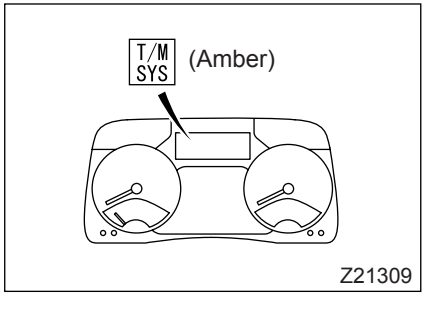
Immediately slow down by braking and stop the vehicle in a safe place.

- **Actions to take after stopping the vehicle**

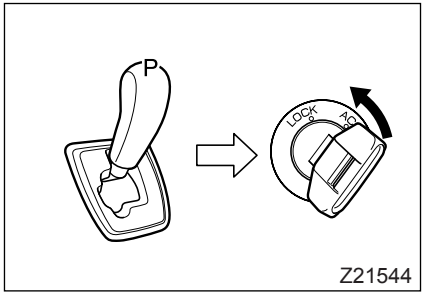
1. Place the gearshift lever in the “P” position and shut off the engine.
2. Restart the engine. If the engine cannot be started, contact an authorized dealer.
3. If the T/M SYS warning (red) is not indicated after the engine is started, you may continue to drive the vehicle. If the warning is indicated again, do not continue to drive but contact an authorized dealer immediately.



10.2 T/M SYS warning (amber)



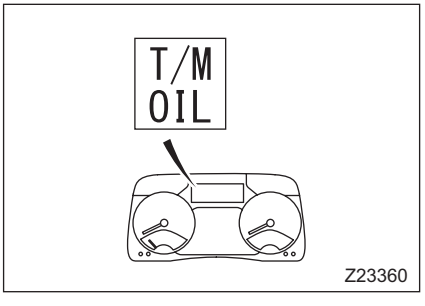
- **If this warning appears while driving:**
- You may continue to drive if automatic gear shifting is possible in the automatic shift mode. However, have the vehicle inspected by an authorized dealer as soon as possible.
- If automatic gear shifting does not work in the automatic shift mode, stop the vehicle in a safe place.



- **Actions to take after stopping the vehicle**

1. Place the gearshift lever in the “P” position and shut off the engine.
2. Restart the engine. If the engine cannot be started, contact an authorized dealer.
3. If the T/M SYS warning (amber) is not indicated after the engine is started, you may continue to drive the vehicle. If the warning is indicated again, operate the gearshift lever in the manual shift mode. You may continue to drive if manual gear shifting is possible. However, have the vehicle inspected by an authorized dealer as soon as possible. If manual gear shifting is impossible, do not continue to drive but contact an authorized dealer.

10.3 T/M OIL warning



- **If the warning appears and the buzzer sounds three times:**

This warning is displayed when the clutch control fluid temperature is too high.
If this indication appears while driving, stop the vehicle in a safe place and do the following:

- Place the gearshift lever in the “P” position, and run the engine slightly above idling speed by depressing the accelerator pedal to cool down the transmission.
- If the warning disappears, you may continue to drive. If the warning remains on or is indicated repeatedly, transmission oil leakage may be the cause. Contact an authorized dealer.

- **If the warning appears and the buzzer continues sounding:**

The clutch temperature is abnormally high because the clutch would slip.
If the warning appears while driving, do the following:

- Select a lower gear than usual in the manual shift mode and start the engine.
- If the indication remains displayed, stop the vehicle in a safe place and be sure to fully apply the parking brake.
- Place the gearshift lever in the “P” position. Depress the accelerator pedal to run the engine at a speed slightly higher than the idling speed in order to cool down the engine.
- If the warning disappears and the buzzer stops, you may continue to drive. If the warning remains on, contact an authorized dealer.

⚠ CAUTION

Do not stop the engine without letting the transmission cool down, otherwise the transmission may seize up. Stop the engine only after the T/M OIL warning has disappeared from the screen.

Cruise control

Cruise control memorizes any desired speed above the speed indicated below and, maintains that speed automatically without having to operate the accelerator pedal. This is especially useful for freeway driving when there is little chance of having to pull over and stop.

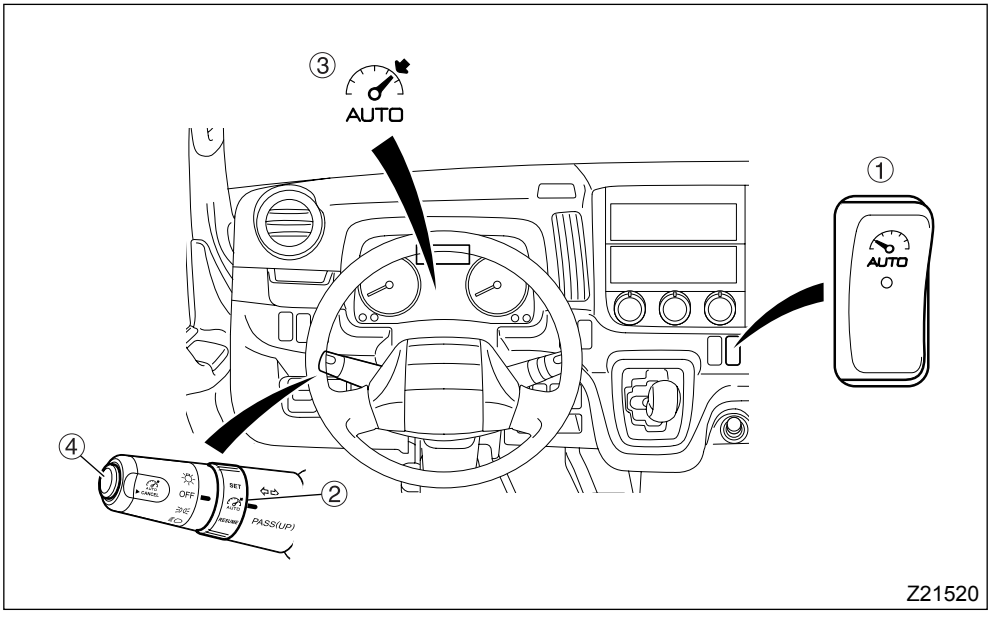
Speeds above which cruise control functions
Approx. 30 km/h (18 mph)

NOTE:
For the sake of safety, do not use the cruise control in the following driving conditions:

- *In heavy traffic which does not allow sufficient vehicle to vehicle distance*
- *On roads with sharp turns or poor visibility*
- *On icy, snow-covered, or otherwise slippery roads*
- *Steep downhill road*

The vehicle speed may become higher than the set speed on a steep downhill road. Stop using the cruise control if this occurs.

1 Controls and indicator



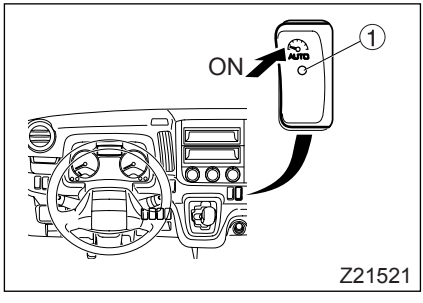
① **Main switch**
This switch is used to activate and deactivate the cruise control function. The lamp inside the switch illuminates when the cruise control is on. The switch returns automatically to the neutral position after having been pressed.

⚠ WARNING
For safety, turn off the main switch when the cruise control is not in use.

② **SET/RESUME switch**
SET:
Turn this switch to set a desired speed and to reduce the set speed as well. The switch returns automatically to the neutral position after having been turned.
RESUME:
Turn this switch to change the set speed to a higher speed and to return to the previously set speed as well. The switch returns automatically to the neutral position after having been turned.

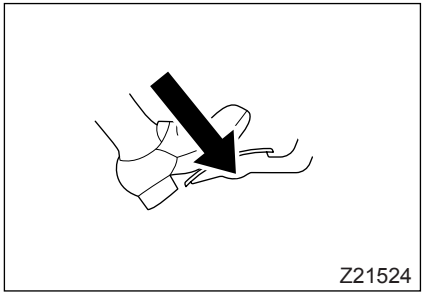
③ **Cruise control indicator lamp**
If the cruise control is activated, this lamp illuminates during driving.

④ **Cancel switch**
Press this switch to stop cruise control operation.

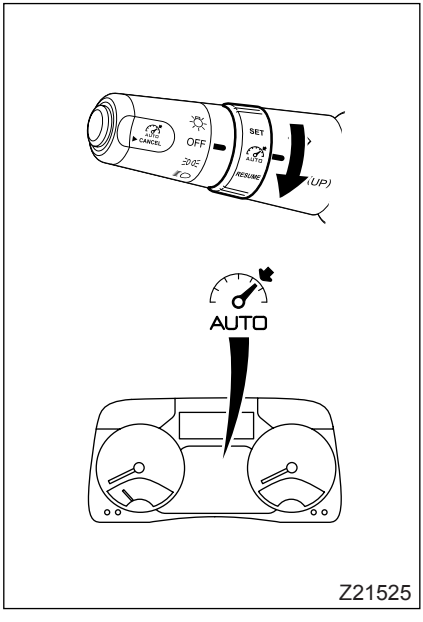


2 To set a desired speed

1. If your vehicle is equipped with an exhaust brake, check that the exhaust brake switch is in the “OFF” position. If the switch is in the “ON” position, place it in the “OFF” position.
   Press the ON side of the cruise control main switch. The lamp ① inside the switch will illuminate.



2. Depress the accelerator pedal until the desired speed is reached.

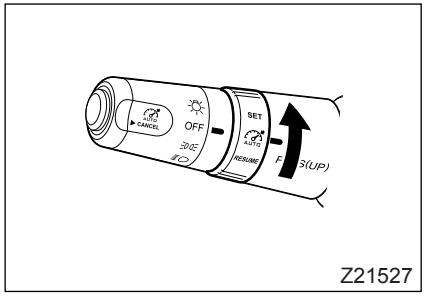


Z21525

3. When the desired speed is reached, turn the RESUME/SET switch toward the "SET" side. The AUTO indicator lamp will illuminate indicating that the cruise control is activated. Now the desired speed is memorized, so release the accelerator pedal. The vehicle will run maintaining that speed automatically.

NOTE:

- *If you activate the cruise control while driving with the DUONIC® system in the manual shift mode, the DUONIC® system will switch to the automatic shift mode. When the DUONIC® system switches to the automatic shift mode, the multi-information display will show "D".*
- *Before pressing the ON side of the main switch to set a desired speed, make sure the exhaust brake switch is in the OFF position. You will not be able to set the speed if the exhaust brake switch is in the ON position. When driving with the cruise control active, exhaust braking can be used as usual, but the cruise control function will be deactivated while exhaust braking is being used.*

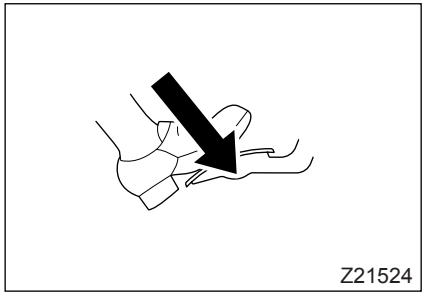


Z21527

3 To increase the set speed in cruise control mode

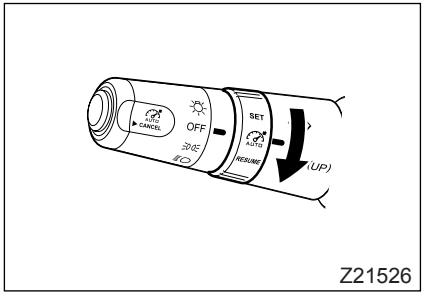
- **By using the SET/RESUME switch**

Turn the SET/RESUME switch toward the "RESUME" side. The vehicle will accelerate. Release the switch when the desired speed is reached. The vehicle will cruise at the new, higher speed.


Z21524

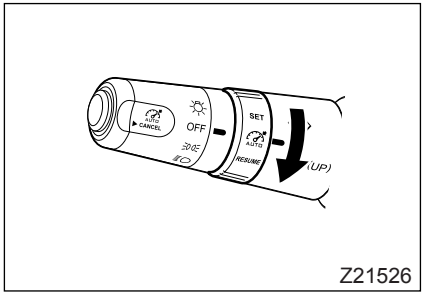
- **By using both accelerator pedal and SET/RESUME switch**

1. Use the accelerator pedal to reach the desired speed.



Z21526

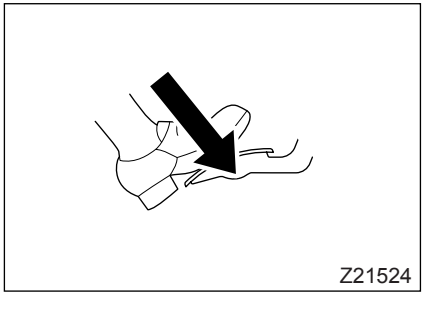
2. When the desired speed is reached, turn the SET/RESUME switch to the “SET” side for 1 second or longer. The vehicle will then cruise at the new, higher speed.



Z21526

4 To decrease the set speed in cruise control mode

Turn the SET/RESUME switch toward the “SET” side. The vehicle will decelerate. Release the switch when the desired speed is reached. The vehicle will cruise at the new, lower speed.


Z21524

5 To accelerate temporarily in cruise control mode

Depress the accelerator pedal as you do in normal accelerating. When the pedal is released, the vehicle will cruise at the set speed again.

6 Automatic deactivation of the cruise control

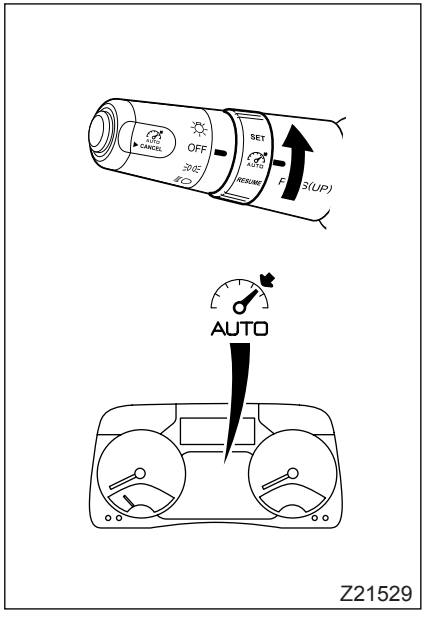
The cruise control is deactivated automatically and the AUTO indicator lamp also goes out in the following conditions:

- When the brake pedal is depressed
- When the exhaust brake <option> is activated
- When the gearshift lever is moved to any position other than “D”.

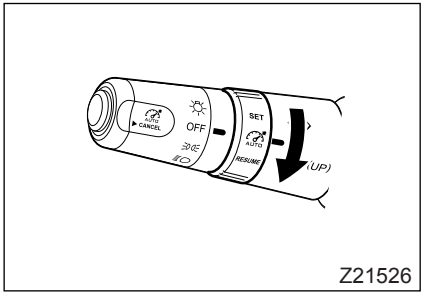
⚠ CAUTION

Placing the gearshift lever in the "N" position temporarily deactivates the cruise control. However, such practice is dangerous during driving because engine braking will no longer be possible. It will also cause malfunction of the transmission.

7 To reactivate the temporarily deactivated cruise control



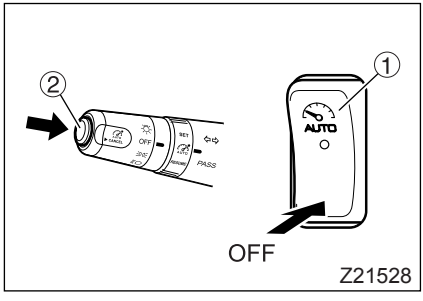
- To reactivate the cruise control, turn the SET/ RESUME switch toward the "RESUME" side. The AUTO indicator lamp will illuminate again and the vehicle will resume running at the set speed.



- To reactivate the cruise control while altering the set speed to a new speed, turn the SET/ RESUME switch toward the "SET" side when the vehicle has reached the desired speed. The AUTO indicator lamp will light up, and the vehicle will continue running at the set speed.

NOTE:
Under any of the following conditions, you cannot resume the set speed by performing the above operation. In these situations, perform the speed setting procedure from the beginning.

- *The vehicle speed is lower than 30 km/h (18 mph).*



8 To deactivate the cruise control

Deactivate the cruise control by doing either of the following:

- Press the “OFF” side of the main switch ①.
- Press the cancel switch ②.

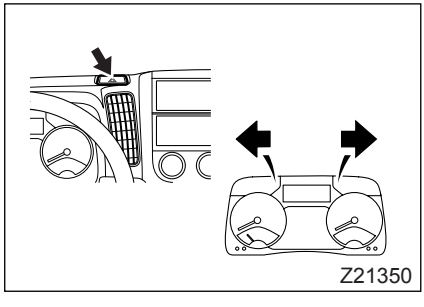
⚠ CAUTION

When there is a problem with the engine control system, the cruise control cannot be used.

Hazard warning lamp switch

⚠ CAUTION

The battery may be discharged and the engine impossible to restart if the hazard warning lamps are operated for an extended period of time.

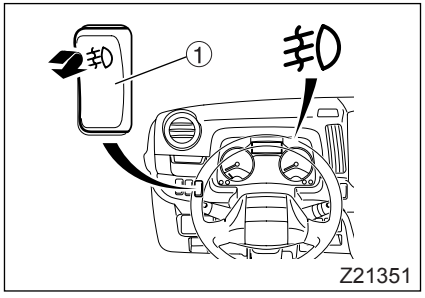


The hazard warning lamps may be used as a warning to other vehicles when you suddenly find it necessary to stop your vehicle in emergencies.
The lamps can flash in any of the starter switch positions.
Pressing switch causes all turn signal lamps to flash simultaneously. At the same time, indicator lamps ⇔ start flashing.
Pressing the switch again causes the lamps to go out.

Front fog lamp switch OPT

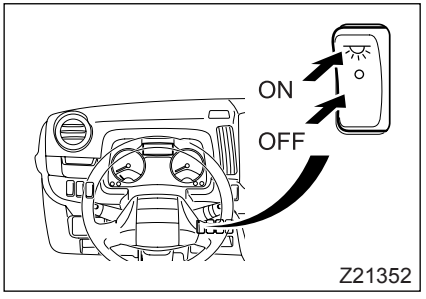
⚠ CAUTION

Avoid using the front fog lamps unless visibility is poor, as they may prove distracting to other motorists during normal driving conditions.



Use the front fog lamps when visibility is poor due to fog or snow.
The front fog lamps can be used with the lighting switch in the ≡D or ≡D position.
Pressing the front fog lamp switch ① lights the front fog lamps. At the same time, indicator lamp is illuminated.

The front fog lamps can be turned off by pressing again the front fog lamp switch or by turning the lighting switch to the “OFF” position.

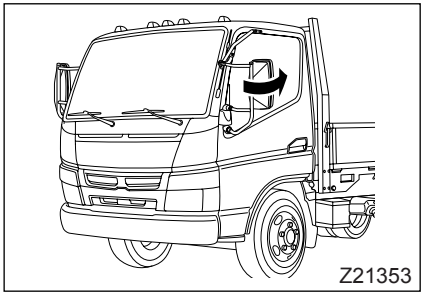


Van body dome light switch

This switch operates the lighting inside the van body. With the starter switch in the “ON” position, operate the van body dome light switch to turn the van body interior lighting on or off. An indicator light comes on in the switch when it is in the “ON” position.

⚠ CAUTION

Leaving the van body interior lighting on for an extended period without the engine running can drain the battery.

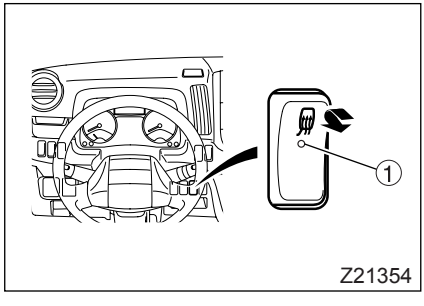


Rearview mirrors

The mirror stay can be swung manually in the direction indicated by the arrow.
Swing the stay to the inward position if the mirror is obstructing free movement of the vehicle, for example, when turning a tight corner, passing an oncoming vehicle or parking in a narrow place.

⚠ WARNING

- **During normal driving, the mirrors must be in their outward positions and adjusted so that clear rear views may be obtained through them.**
- **When turning right or left, bear in mind the difference in tracking of the front and rear inner wheels, and use the rearview mirrors to confirm safety behind you.**
- **Pay attention to the extended rearview mirrors when driving on narrow roads. Take particular care to ensure that they do not hit pedestrians.**
- **If rainy weather, drops of water can adhere to the mirrors, detracting from rearward visibility.**
  Stop the vehicle and wipe off the water to restore visibility.

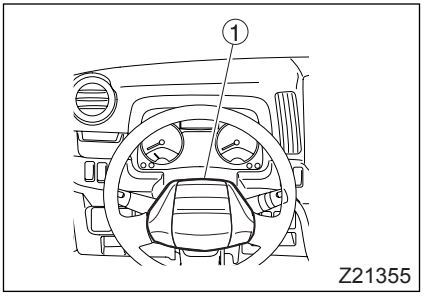


Mirror heater switch OPT

The mirror heaters can be used when the starter switch is in the “ON” position. If you press this switch when the mirrors are misted up, the heaters in the mirrors on both sides will operate to defog them. The lamp ① inside the switch comes on at this time. Press the switch again when the mirrors are clear. The heaters are automatically turned off in about 30 minutes if the switch is left on.

⚠ CAUTION

Do not use the mirror heaters unless the engine is running. Otherwise, the battery may become drained, making it impossible to start the engine.



Horn switch

Press the horn switch pad ① at the center of the steering wheel to sound the horn.

Transmission PTO OPT

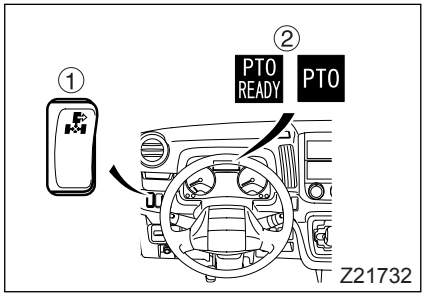
⚠ CAUTION

- **Engage the PTO only with the engine running at idle.**
- **Pay careful attention to the indicator lamp when using the PTO.**
  The engine output may dangerously change if the PTO is used for an extended time while the indicator lamp is flashing, which could lead to an accident.
  If you find the indicator lamp flashing before using the PTO, first perform parked DPF regeneration and then engage the PTO. If the indicator lamp starts flashing during PTO operation, disengage the PTO and perform parked DPF regeneration before continuing the operation. ⇨ P. 5-56
- **When using the PTO, never fail to engage the parking brake and place the gearshift lever in the "P" position. Placing the gearshift lever in the "P" position is important for safety although the PTO is operational also in the "N" position. Placing the gearshift lever in any position other than "P" or "N" is very dangerous as this will cause the vehicle to move and could lead to an accident.**
  Make sure the parking brake is firmly engaged and the gearshift lever is in the "P" position especially when using the PTO while controlling the engine from outside the vehicle.
- **Be sure to disengage the PTO before driving. If you fail to disengage the PTO, the connected equipment/implement may be driven and could cause an accident. This could also damage the equipment/implement.**

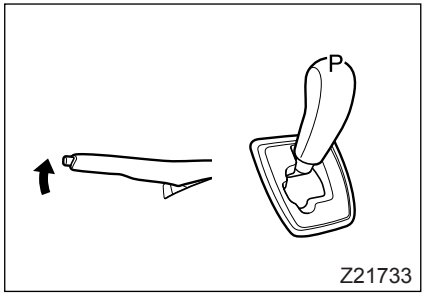
- **Depending on the type of device you connect to the PTO, please note that depressing the brake pedal during operation may reduce the speed of the engine.**

NOTE:
- *The transmission PTO delivers power taken from the truck's transmission to a hydraulic pump or other equipment/implement.*
- *Both automatic DPF regeneration and parked DPF regeneration do not work while the PTO is being used.*
- PTO *will be indicated and a buzzer will sound to warn you if you place the gearshift lever in any position other than "P" or "N" while the PTO is engaged or if you press the PTO switch while driving.*

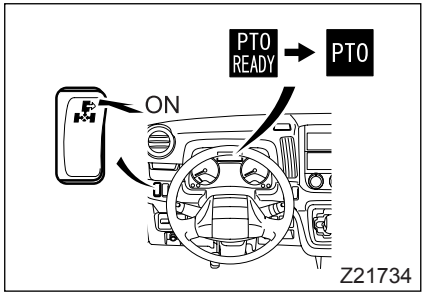
1 Control and indicators



① **PTO switch**
Use this switch to engage and disengage the PTO.
② **Indicators displayed on multi-information display**
- PTO READY is displayed while the transmission PTO is being engaged.
- PTO is displayed when the transmission PTO has been engaged.

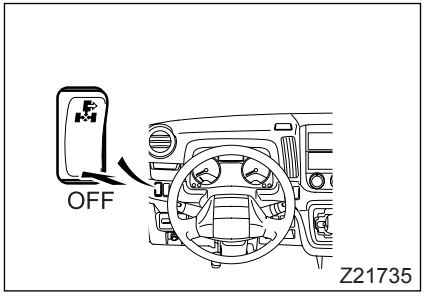


1.1 Engagement
1. Confirm that the parking brake is firmly applied.
2. Confirm that the gearshift lever is placed in the "P" position.
3. Start the engine while depressing the brake pedal. After the engine has warmed up, let the engine idle.
4. Make sure the indicator lamp is not flashing. If it is flashing, perform parked DPF regeneration before going to the next step.



5. Press the "ON" side of the PTO switch.
6. The multi-information display indicates PTO READY. Once the PTO has been engaged, the indicator on the screen is replaced by PTO.

NOTE:
The PTO READY indicator may not be displayed under certain conditions. This does not indicate a problem.

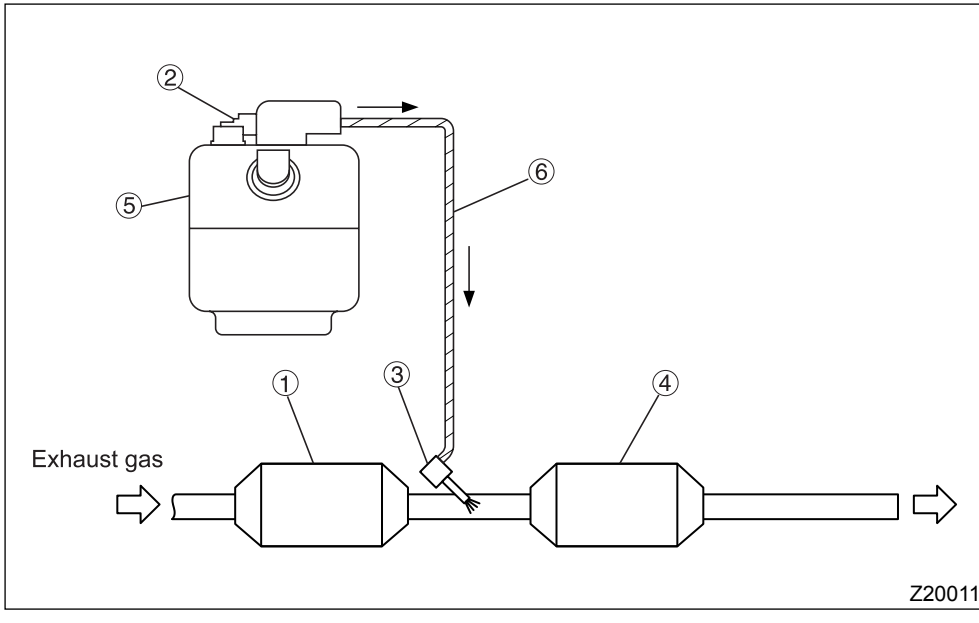


1.2 Disengagement

Press the “OFF” side of the PTO switch.

Make sure the multi-information display indicates neither PTO READY nor PTO.

BlueTec® system



① **DPF muffler**
② **Pump module**
③ **Dosing module**
④ **Muffler with SCR/Oxidation catalyst**
⑤ **DEF tank**
⑥ **DEF tube**

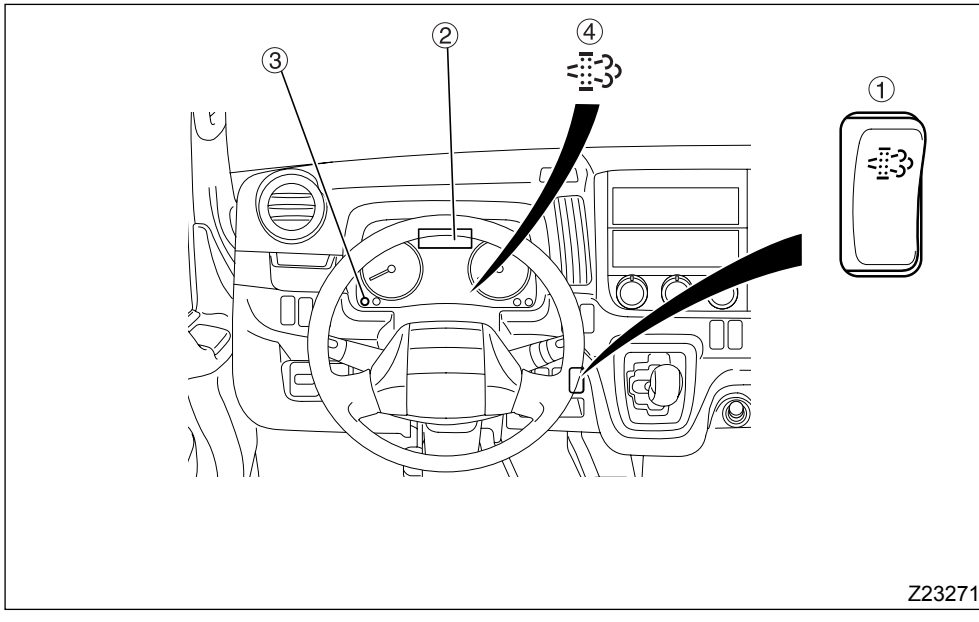
NOTE:
BlueTec®: A brand of Daimler AG

- The BlueTec® system is a combination of the regeneration controlling DPF system and the BlueTec® exhaust gas aftertreatment.
- The regeneration controlling DPF system collects particulate matter (PM) in exhaust gases with a ceramic filter located inside the muffler and burns the PM on the filter utilizing the effect of the front oxidation catalyst (continuous DPF regeneration).

- Continuous filter regeneration is impossible under certain conditions such as low-speed driving. Under these conditions, the system automatically raises the exhaust temperature to burn the PM to regenerate the filter (automatic DPF regeneration). However, even automatic DPF regeneration is sometimes impossible if the vehicle is repeatedly driven very slowly and the engine is frequently started and stopped. The DPF must then be regenerated by burning the PM under manual control (parked DPF regeneration).
- The BlueTec® exhaust gas aftertreatment reduces nitrogen oxides (NOx) by adding (spraying) Diesel Exhaust Fluid (DEF) to an area upstream of the selective catalytic reduction (SCR) catalyst using a device called the DEF doser to decompose NOx into water and nitrogen.

1 Regeneration controlling DPF system

1.1 Controls and indicators

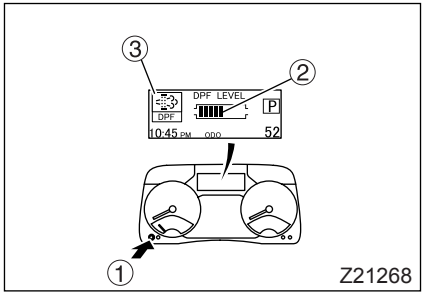


① **DPF cleaning switch**
Use this switch for parked DPF regeneration to burn PM in the DPF.

② **Multi-information display**
The multi-information display indicates the amount of PM in the DPF, a prompt for performing parked DPF regeneration, the predicted time until completion of parked DPF regeneration, and warnings.

③ **MODE switch**
Use this switch for selecting and setting indications on the multi-information display.

④ **DPF indicator lamp**
This lamp lights or flashes to indicate the state of the DPF.



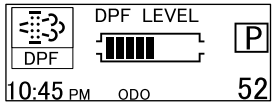
1.2 PM indicator

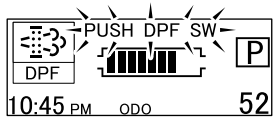
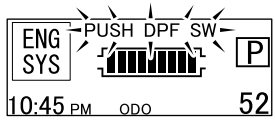
If you select the DPF monitor on the multi-information display, you can check the amount of PM collected in the DPF.

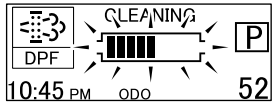
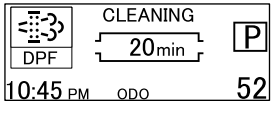
- Select the DPF monitor mode by pressing the MODE switch ① to see the PM indicator ②.
- The PM indicator shows the amount of PM in 9 degrees. The number of segments increases or decreases as the amount of PM changes. In addition, the color of the symbol ③ changes as follows:
  - Green: When the number of displayed segments is 1 to 6
  - Amber: When the number of displayed segments is 7 to 9

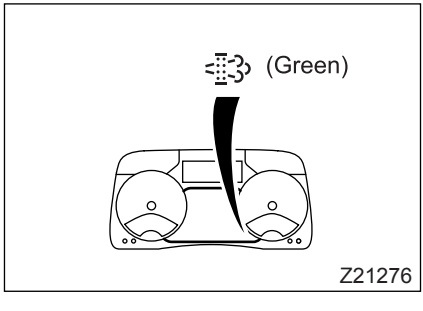
1.3 PM indicator and warning/indicator lamp

- The PM indicator and warning/indicator lamp either light or flash according to the amount of PM in the DPF.
- Perform parked DPF regeneration if prompted by the warning/indicator lamp as well as by the PM indicator on the multi-information display.

Indication by PM indicator	Warning/indicator lamp	Parked/automatic regeneration	Ref. page
When the number of displayed segments is 1 to 6:  Z21269	–	–	–

Indication by PM indicator	Warning/indicator lamp	Parked/automatic regeneration	Ref. page
When the number of displayed segments is 7 or 8:  Z21270 • The “PUSH DPF SW” message flashes. • The DPF symbol turns from green to amber.	The lamp (amber) flashes slowly (0.5-second intervals).	Perform parked DPF regeneration within 50 km (31 miles) or 1 hour, whichever earlier, after the lamp starts flashing.	5-56 5-57
When the number of displayed segments is 9: Z21271 • The “PUSH DPF SW” message flashes. • The DPF FULL warning is displayed.	The lamp (amber) flashes quickly (0.25-second intervals).	Immediately stop the vehicle in a safe place and perform parked DPF regeneration.	5-56 5-57
When the DPF is overloaded with PM:  Z21316 • The “PUSH DPF SW” message flashes. • The ENG SYS warning is displayed.	The lamp (amber) flashes quickly (0.25-second intervals).	Immediately stop the vehicle in a safe place and perform parked DPF regeneration. The engine power is automatically reduced when the ENG SYS warning is displayed.	5-56 5-57

Indication by PM indicator	Warning/indicator lamp	Parked/automatic regeneration	Ref. page
When automatic DPF regeneration is in progress:  Z21272 • The “CLEANING” message is displayed. • PM amount segments flash.	• The lamp (green) lights. • If a prompt for parked DPF regeneration has been issued following indication of 7 or more PM amount segments, the lamp lights in green and amber alternately.	Automatic DPF regeneration is in progress.	5-54
When parked DPF regeneration is in progress:  Z21273 The predicted time until completion of parked DPF regeneration is indicated.	The lamp (amber) lights.	Parked DPF regeneration is in progress.	5-56



Z21276

1.4 Automatic DPF regeneration

- If the DPF becomes so heavily loaded with PM that it cannot be regenerated by continuous DPF regeneration, the system initiates automatic DPF regeneration (regeneration by burning PM). The indicator lamp (green) lights while the DPF is being regenerated by this method. You can operate the vehicle as usual even during automatic DPF regeneration although the engine operating sound and idling speed will change due to the higher exhaust temperature.

- If you select the DPF monitor mode on the multi-information display during automatic DPF regeneration, the “CLEANING” message is displayed above the PM indicator, and the PM indicator flashes.

⚠ WARNING

If the vehicle must be stopped during automatic DPF regeneration, do so after checking that there are no flammable materials, such as dead grass or paper, near the exhaust pipe and muffler. As the exhaust gas as well as the exhaust pipe and muffler are extremely hot, nearby flammable materials could ignite and cause a fire.

NOTE:

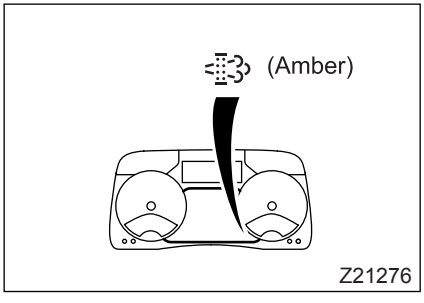
- *During automatic DPF regeneration, the engine operating sound will change and, when the vehicle is stopped, the idling speed will rise (to 800 rpm) and the exhaust valve will be activated. These are normal conditions.*
- *Automatic DPF regeneration does not take place when the PTO is used. (Vehicles with a PTO)*
- *During automatic DPF regeneration when the indicator lamp is flashing in amber (or the PM indicator is showing 7 or more segments), if you continue pressing the DPF cleaning switch until the lamp lights in amber, the system discontinues automatic DPF regeneration and initiates parked DPF regeneration.*
- *No automatic DPF regeneration takes place while the ENG OIL and ENG SYS warnings (amber) are being displayed alternately.*

1.5 Parked DPF regeneration (performed following illumination of the (amber) indicator lamp)

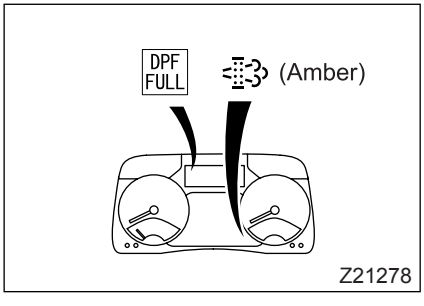
The system sometimes cannot automatically remove the DPF trapped PM by oxidation, typically when you drive the vehicle at very low speeds or start and stop the engine frequently during operation. The system informs you of such a condition by flashing the (amber) indicator lamp to prompt you to manually remove the DPF trapped PM by burning. The flashing interval of the indicator lamp differs depending on the amount of the PM accumulated in the DPF.

NOTE:
If the vehicle is used in any of the following conditions, there will be a higher risk of automatic DPF regeneration not working, and so the indicator lamp will flash more frequently to prompt you to perform parked DPF regeneration.

- *The vehicle is mainly driven at 20 km/h (12 mph) or lower speeds.*
- *Operation of the vehicle involves frequent starting and stopping of the engine at short intervals (less than 10 minutes).*
- *The vehicle is repeatedly driven for short distances (less than 10 km (6 miles)).*
- *The engine is used for such short times that it is shut off before having had time to warm up.*



- Slow flashing (0.5-second interval)
  You must use the DPF cleaning switch within 50 km (31 miles) or 1 hour of driving after the start of the flashing of the indicator lamp to perform the parked DPF regeneration in order to remove the PM inside the DPF by burning.



- Fast flashing (0.25-second interval)
  You must bring the vehicle to a stop in a safe place as soon as possible, then use the DPF cleaning switch to perform the parked DPF regeneration in order to remove the PM inside the DPF by burning.

⚠ CAUTION

If the (amber) indicator lamp flashes quickly or the DPF FULL warning appears on the multi-information display, promptly perform parked DPF regeneration by using the DPF cleaning switch to remove PM in the DPF by burning. Continuing to drive with an overloaded DPF will result in system failure.

1.6 How to perform the parked DPF regeneration

The parked DPF regeneration steps you should follow upon flashing of the relevant indicator, warning and (amber) indicator lamp are indicated below. You may perform the parked DPF regeneration only when the indicator lamp flashes. The parked DPF regeneration time is as a general rule 20 minutes although it varies with the conditions in which the vehicle is operated.

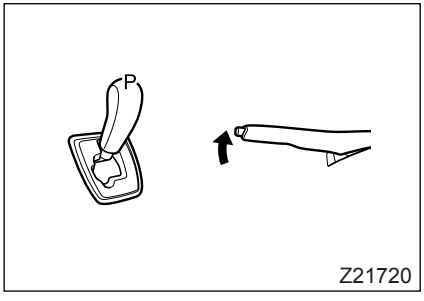
⚠ WARNING

- **Do not perform the parked DPF regeneration in a poorly ventilated garage or other closed area. Exhaust gas contains carbon monoxide, which is toxic and very dangerous.**
- **Avoid the following areas when performing parked DPF regeneration:**
  - **On painted road surfaces: Hot exhaust gas will discolor the paint.**
  - **Near a hedge: Vegetation may be killed by the hot exhaust gas.**
  - **Place with flammable materials, such as dead grass or paper: A fire may occur.**
- **Keep all people away from the exhaust pipe and muffler.**
- **Prevent anyone from touching the exhaust pipe and muffler or being exposed to the exhaust gas.**

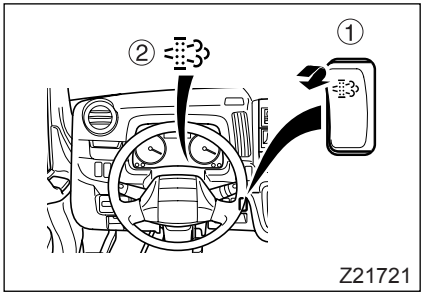
NOTE:
Parked DPF regeneration is impossible in the following conditions:

- *Within 30 seconds after starting the engine*
- *When the coolant indicator shows the temperature by up to 5 segments (Perform parked DPF regeneration after warming up the engine.)*
- *When the PTO switch is in the "ON" position (Vehicles with a PTO)*

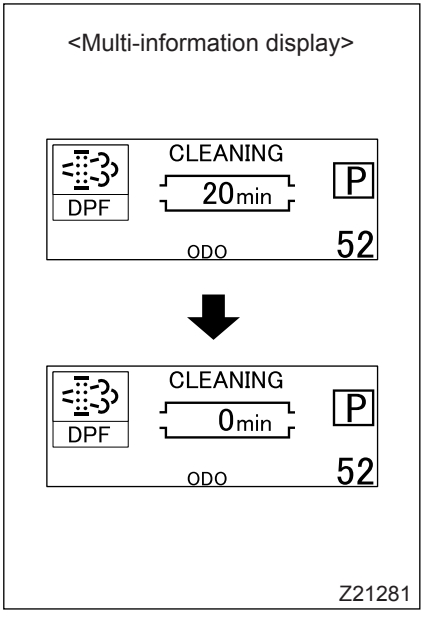
- *While the accelerator pedal or brake pedal is being depressed*
- *While the vehicle is moving*
- *When the gearshift lever is in any position other than “P” or “N”*



1. Park the vehicle in a safe place and warm up the engine.
2. Firmly engage the parking brake. Place the gearshift lever in the “P” or “N” position and then wait for at least 30 seconds.
3. If your vehicle is equipped with a PTO, make sure the PTO is disengaged.



4. With the engine still in operation, continuously press the “ON” side of the DPF cleaning switch ① until the indicator lamp ② stops flashing and shifts to continuous illumination. The engine will increase its idling speed (to approx. 1,500 rpm) to start the parked DPF regeneration. When the parked DPF regeneration is started, the predicted time until completion of the regeneration is indicated on the multi-information display. The exhaust brake valve may also operate during the parked DPF regeneration.



5. The predicted time indication shows a time near 0 minute, the idling speed of the engine returns to the original idling speed (approx. 650 rpm), and the indicator lamp ② goes out.
6. Once the parked DPF regeneration is completed, you may drive the vehicle normally.
7. If you need to suspend the parked DPF regeneration before completion of the sequence, repress the “ON” side of the DPF cleaning switch or depress the accelerator pedal.

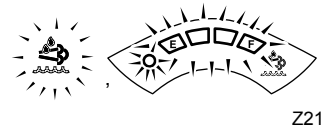
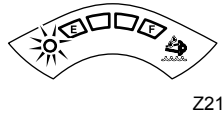
NOTE:

- *When you deliberately suspend the parked DPF regeneration, complete the remaining part of the sequence without delay by performing the above steps again.*
- *If the PM amount is indicated by 7 or more segments, you can start parked DPF regeneration even during automatic DPF regeneration by using the above method.*

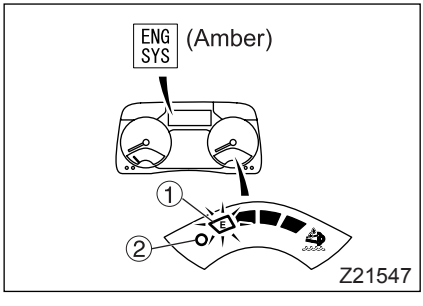
2 BlueTec® exhaust gas aftertreatment

2.1 Warnings for BlueTec® exhaust gas aftertreatment

Five different combinations (patterns) of warning lamp/indicator lamp operation and buzzer sound warn you of the different abnormal conditions with the BlueTec® exhaust gas aftertreatment as shown below.

Warning pattern	Buzzer	Warning/indicator lamp	Problem condition	Ref. page
1	No sound	ENG SYS, (Amber) Z21727	Quantity of DEF in DEF tank has fallen too low. Engine power is reduced in stages.	5-60
2	Sounds	ENG SYS, (Red) Z21728	Quantity of DEF in DEF tank has fallen further. Engine power is further reduced in stages.	5-61
3	Loudly sounds	ENG SYS, (Red)  Z21729	DEF tank has become empty. A driving restriction automatically engages, locking the gear 1st or reverse, so the vehicle can be driven only slowly.	5-61
4	No sound *5	ENG SYS*7, (Amber) *1,  Z21757	DEF quality is degraded. Engine power is reduced in stages. *3	5-62
5	No sound *6	ENG SYS*7, (Amber) *2	BlueTec® exhaust gas aftertreatment is faulty. Engine power is reduced in stages. *4	5-63

*1: If you drive more than another 160 km (100 miles) or additional 2 hours, the warning lamp, which has been lit, starts flashing.
*2: If you drive more than another 240 km (150 miles) or additional 3 hours, the warning lamp, which has been lit, starts flashing.
*3: If you drive more than another 80 km (50 miles) or additional 1 hour, the engine power will be further reduced. If you drive more than another 160 km (100 miles) or additional 2 hours after detection of the problem, the gear will be locked in 1st or reverse, limiting the vehicle operation to slow-speed driving.
*4: If you drive more than another 80 km (50 miles) or additional 1 hour, the engine power will be further reduced. If you drive more than another 240 km (150 miles) or additional 3 hours after detection of the problem, the gear will be locked in 1st or reverse, limiting the vehicle operation to slow-speed driving.
*5: If you drive another 80 km (50 miles) or 1 hour, a buzzer will start sounding. If you drive another 160 km (100 miles) or 2 hours after detection of the problem, the buzzer will get louder.
*6: If you drive another 80 km (50 miles) or 1 hour, a buzzer will start sounding. If you drive another 240 km (150 miles) or 3 hours after detection of the problem, the buzzer will get louder.
*7: If you drive another 80 km (50 miles) or 1 hour, the warning indication will change from amber to red.



2.2 Excessively low DEF quantity (warning pattern 1)

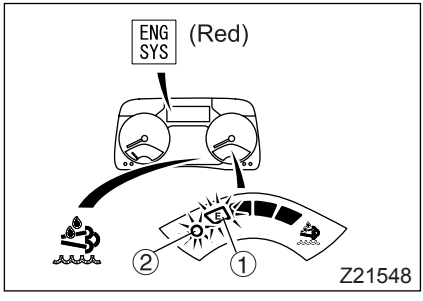
If the quantity of DEF in the tank becomes too low, you are warned of the condition by the following.

⇨ P. 1-9

- ENG SYS (amber) is shown.
- The E segment ① of the DEF level indicator, which has been lit, starts flashing slowly (at 0.5-second intervals).
- The DEF level warning lamp ② comes on.
- The engine power is automatically reduced in stages.

⚠ CAUTION

Do not let the DEF tank become empty. If the tank becomes empty, the vehicle's operation is automatically restricted so you can drive only at low speed.



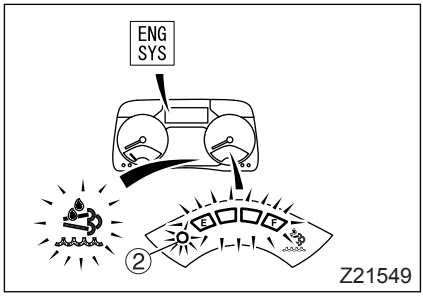
2.3 Further reduced DEF level (warning pattern 2)

If the DEF level drops further, you are warned of the condition as follows. Refill the DEF tank immediately. ⇨ P. 1-9

- A buzzer sounds.
- The ENG SYS indication changes from amber to red.
- The warning lamp comes on.
- The E segment ① of the DEF level indicator, which has been flashing slowly, starts flashing quickly (at 0.25-second intervals).
- The DEF level warning lamp ②, which has been lit, starts flashing.
- The engine power is further reduced in stages.

⚠ CAUTION

Do not let the DEF tank become empty. If the tank becomes empty, the vehicle's operation is automatically restricted so you can drive only at low speed.



2.4 Empty DEF tank (warning pattern 3)

If the DEF tank becomes completely empty, the following warning is issued and the driving performance is restricted as follows:

- The DEF level warning lamp ② continues to flash.
- All segments from F to E of the DEF level indicator flash quickly (at 0.25-second intervals).
- The warning lamp, which has been lit, starts flashing.
- ENG SYS is in red.
- The buzzer sounds loudly.
- Speed limitation will be activated within 60 minutes or immediately after special conditions as follows.
  - When refuelling.
  - When applying the parking brake.
  - When restarting the engine.

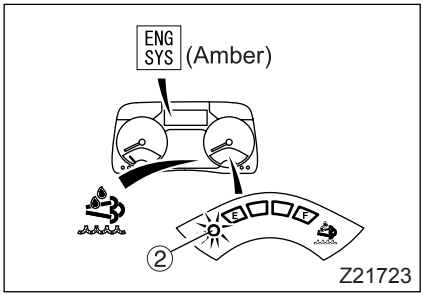
  A driving restriction automatically engages, locking the gear in 1st or reverse, so the vehicle can be driven only slowly.

Refill the DEF tank immediately. ⇨ P. 1-9

2.5 Degraded DEF quality (warning pattern 4)
If the system detects a deterioration in quality of the DEF due to addition of any fluid (water, low-density DEF, etc.) other than acceptable DEF, the warning lamps will light and flash, a buzzer will sound, and the engine power will be automatically reduced.
If this condition happens, shut off the engine and contact an authorized dealer to have the degraded DEF drained and the vehicle inspected.

⚠ CAUTION

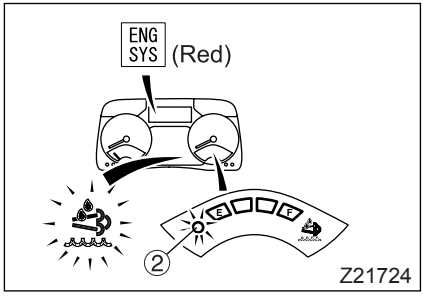
If you continue to drive with the warning lamps lit and/or flashing and a buzzer sounding, the NOx level of exhaust emissions will increase, damaging the environment. In addition, the BlueTec® exhaust gas aftertreatment will be damaged. Continuing to drive in this condition also results in reduced engine output and finally in the engagement of driving restrictions after which the vehicle can be driven only at slow speed.



- The following conditions will result if the system detects an unacceptable fluid (water, low-density DEF, etc.):
  - The warning lamp comes on.
  - ENG SYS (amber) is shown.
  - The DEF level warning lamp ② flashes.
  - Engine power is reduced in stages.

NOTE:
The engine power will be further reduced in stages if you add any fluid (such as water, low-density DEF, etc.) other than the acceptable DEF within 160 hours of driving after the above condition occurs.

- If you drive another 80 km (50 miles) or 1 hour after detection, the warning indications mentioned above will be supplemented as follows:
  - The ENG SYS warning lamp will change from amber to red.
  - A buzzer will start sounding.
  - The engine power will be further reduced in stages.



- If you continue to drive more than another 160 km (100 miles) or additional 2 hours after the detection of unacceptable fluid (such as water, low-density DEF, etc.), the system applies the following control:
  - Leaves the DEF level warning lamp ② to flash.
  - Changes the state of operation of the warning lamp from lit to flashing.
  - Makes the buzzer sound louder.
  - Speed limitation will be activated within 60 minutes or immediately after special conditions as follows.
    - When refuelling.
    - When applying the parking brake.
    - When restarting the engine.

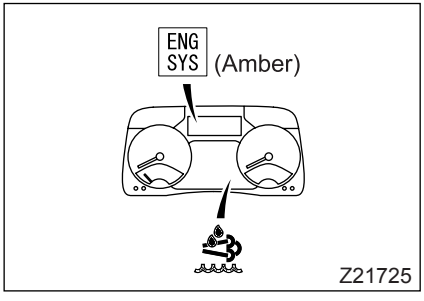
    A driving restriction automatically engages, locking the gear in 1st or reverse, so the vehicle can be driven only slowly.

2.6 Faulty BlueTec® exhaust gas aftertreatment (warning pattern 5)

If there is a problem with the BlueTec® exhaust gas aftertreatment, warning lamps will come on, the engine power will be reduced, and a buzzer will sound. Immediately have the vehicle inspected by an authorized dealer.

⚠ CAUTION

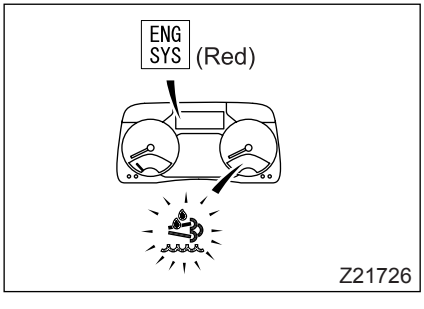
If you continue to drive with the warning lamps lit and/or flashing and a buzzer sounding, the NOx level of exhaust emissions will increase, damaging the environment. In addition, the BlueTec® exhaust gas aftertreatment will be damaged. Continuing to drive in this condition also results in reduced engine output and finally in the engagement of driving restrictions after which the vehicle can be driven only at slow speed.



- The following conditions will result if the system becomes faulty:
  - The warning lamp comes on.
  - Engine power is reduced in stages.
  - ENG SYS (amber) is shown.

NOTE:
The engine power will be further reduced in stages if you add any fluid (such as water, low-density DEF, etc.) other than the acceptable DEF within 160 hours of driving after the above condition occurs.

- If you drive for 80 km (50 miles) or 1 hour after detection of the problem, the conditions mentioned above will be supplemented as follows:
  - The ENG SYS warning lamp will change from amber to red.
  - A buzzer will sound.
  - The engine power will be further reduced in stages.



- If you continue to drive more than another 240 km (150 miles) or additional 3 hours after detection of the problem, the system applies the following control:
  - Changes the state of operation of the warning lamp from lit to flashing.
  - Makes the buzzer sound louder.
  - Speed limitation will be activated within 60 minutes or immediately after special conditions as follows.
    - When refuelling.
    - When applying the parking brake.
    - When restarting the engine.

    A driving restriction automatically engages, locking the gear in 1st or reverse, so the vehicle can be driven only slowly.

3 Precautions for inspection and maintenance

- **DEF dosing system**
  The DEF dosing system (pump module plus dosing module) continues to operate for about 2 minutes after the starter switch has been put in the "LOCK" position. Wait for at least 2 minutes before disconnecting the battery and electrical system connectors in order to carry out an inspection, maintenance and so on.

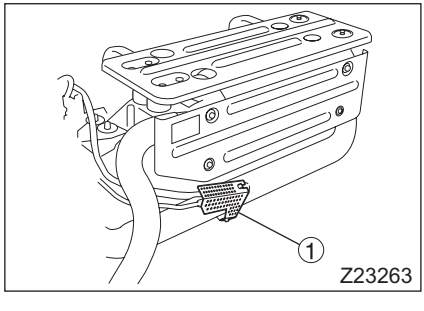
- **Muffler**
  Each muffler has a built-in catalyst and ceramic filter.

⚠ WARNING

Do not touch the water that comes out from the muffler. The water is weakly acidic because of the action of the catalyst inside the muffler. If it comes in contact with your skin, wash it off with lots of water.

⚠ CAUTION

- **Each muffler contains a catalyst and ceramic filter, so do not kick or strike the muffler because you may damage the catalyst and/or the ceramic filter.**
- **Depending upon the way in which the vehicle is used, a large amount of rust may be generated from the exhaust pipe and the suspension bracket, even at an early stage. Visually inspect the muffler, and if there is any abnormality, contact an authorized dealer and have the vehicle inspected.**
- **Do not change the length or the direction of the exhaust pipe or muffler because this may adversely affect the exhaust gas cleaning function. If modification is necessary, consult with an authorized dealer.**
- **Do not remain the dosing module cover ① is heavily clogged with mud.**
  If mud left deposited, dosing module could not cool down, and the BlueTec® could not work effectively. Clean it at regular intervals by using a brush or something also appropriate.

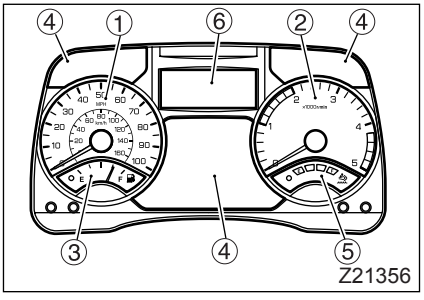


NOTE:

- *Because the exhaust gas is cleaned before it is emitted, the odor of the exhaust gas will be different from that of a conventional diesel vehicle.*
- *When starting the engine, or moving off immediately after starting it in cold weather, white smoke (water vapor) may be emitted from the muffler, however this does not indicate an abnormality.*

6. Instruments and warning lamps

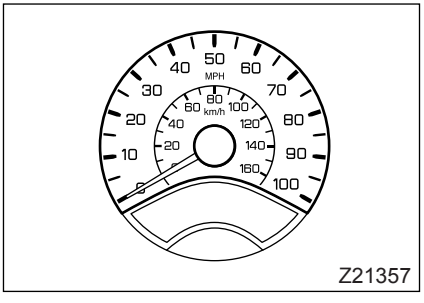
Arrangement of instruments and warning lamps 6-2
Speedometer 6-2
Tachometer 6-2
Water temperature gauge 6-3
Fuel gauge 6-4
DEF level indicator 6-5
Multi-information system 6-7
Warning/indicator telltale 6-22
Warning/indicator lamps 6-28



Z21356

Arrangement of instruments and warning lamps

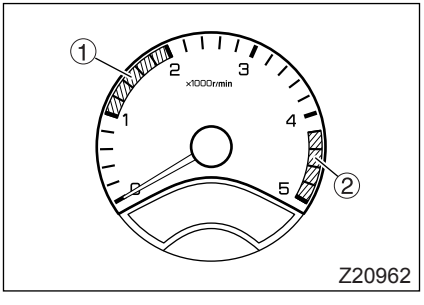
① Speedometer
② Tachometer
③ Fuel gauge
④ Warning/indicator lamps
⑤ DEF level indicator
⑥ Multi-information display



Z21357

Speedometer

The speedometer indicates vehicle speed in miles or kilometers per hour.



Z20962

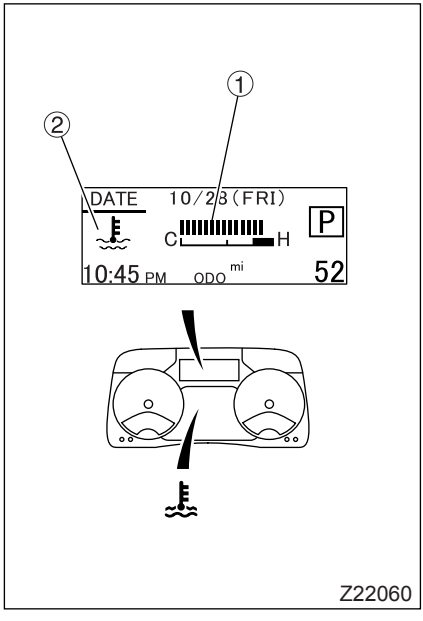
Tachometer

- The tachometer indicates engine speed in revolutions per minute.
- The green zone ① indicates the engine speed that is a rough guide for economic operation.
- If the needle enters the red zone ②, the engine is overrevved. Reduce the vehicle speed sufficiently during downhill driving or downshifting to keep the needle from entering this zone.

⇨ P. 7-12

⚠ CAUTION

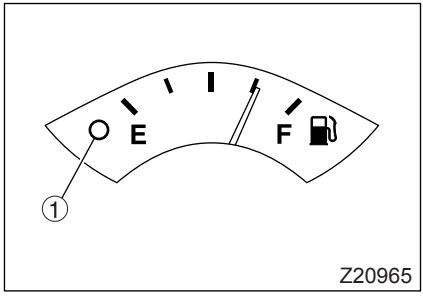
The term "overrev" refers to rotation of the engine at an RPM exceeding the maximum limit. This occurs when the engine is driven by the wheels during downhill driving or downshifting. Persistent overrevving can lead to an engine breakdown.



Water temperature gauge

- The water temperature gauge is displayed on the multi-information display and indicates the temperature of the engine coolant.
- With the engine running normally, the coolant temperature indicator ① will indicate around the middle point of the scale.
- If the coolant temperature becomes abnormally high, the multi-information display ② will show DATE in amber. The vehicle can still be driven.
- If the coolant temperature becomes even higher, the DATE indication on the multi-information display will change from amber to red and the warning lamp will come on. The engine power will be reduced, but the vehicle can still be driven.
- If the engine overheats, the DATE indication (red) and warning lamp on the multi-information display will stay illuminated and a buzzer will sound.

- When the engine has overheated, perform the checks and corrective steps described on this reference page: ⇨ P. 13-8



Fuel gauge

The fuel gauge indicates the amount of fuel still remaining in the fuel tank.

F: Full
E: Empty

When the Low-fuel warning lamp ① is illuminated, the approximate quantity of fuel remaining in the tank is as indicated below.

Quantity of fuel remaining in tank	
Tank capacity	Quantity
113 liters (29.8 gallons)	Approx. 15 liters (4 gallons)
125 liters (33 gallons)	Approx. 17 liters (4.5 gallons)

When the needle approaches the “E” mark or Low-fuel warning lamp is illuminated, refuel as soon as possible.
If the vehicle completely runs out of fuel, air must be bled out of the fuel system. ⇨📖 P. 13-31

⚠ CAUTION

Be careful not to allow the engine to run out of fuel. Engine stall resulting from an empty tank could cause damage to the fuel injection system.

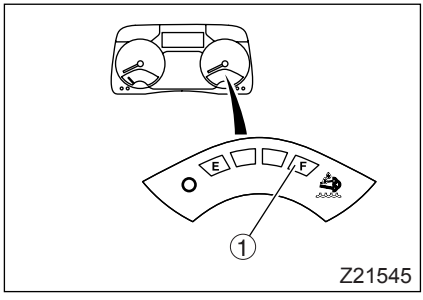
NOTE:
If the vehicle runs out of fuel, air will enter the fuel system. Simply refueling the vehicle will not make the engine startable ; the air must be bled out of the fuel system. ⇨📖 P. 13-31

DEF level indicator

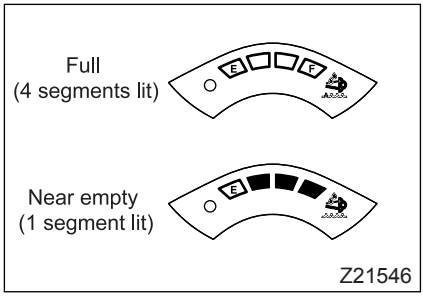
⚠ CAUTION

Do not let the DEF tank become empty. If the tank becomes empty, the vehicle's operation is automatically restricted, so you can drive only at low speeds.
We recommend carrying DEF in a portable container on your vehicle in case the DEF tank becomes empty.

1 DEF level indicator

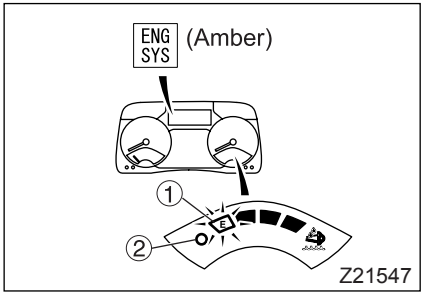


- The DEF level indicator lamp ① shows the level of the DEF in the DEF tank.
  F (all 4 segments are lit): Full
  E (only 1 segment is lit): Replenishment required



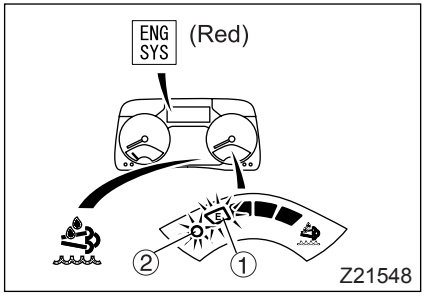
- When the tank is full of DEF, all 4 segments of the DEF level indicator are lit. As the DEF level drops, the segments go out one by one.
- If only the E segment of the DEF level indicator is lit, the quantity of DEF has fallen to an unsafe level. You should then replenish the tank with DEF. ⇨ P. 1-9

2 If the tank is short of DEF

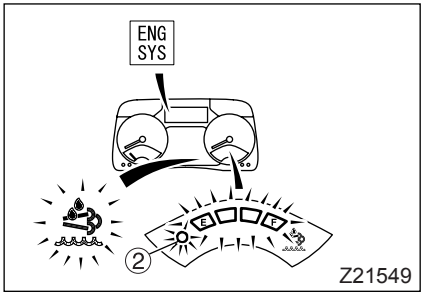


- If DEF has fallen to an unsafe level, a warning is issued and the engine power is controlled as follows:
  - ENG SYS (amber) is shown.
  - The E segment ① of the DEF level indicator, which has been lit, starts flashing slowly (at 0.5-second intervals).
  - The DEF level warning lamp ② comes on.
  - The engine power is automatically reduced in stages.

If the above condition happens, the DEF tank must be refilled as soon as possible. ⇨ P. 1-9



- If the DEF level drops further, a different type of warning is issued and additional engine power control is applied as follows:
  - A buzzer continues sounding.
  - The ENG SYS indication changes from amber to red.
  - The warning lamp comes on.
  - The E segment ① of the DEF level indicator, which has been flashing slowly, starts flashing quickly (at 0.25-second intervals).
  - The DEF level warning lamp ②, which has been lit, starts flashing.
  - The engine power is further reduced in stages.
- If the above condition happens, the DEF tank must be refilled immediately. ⇨ P. 1-9

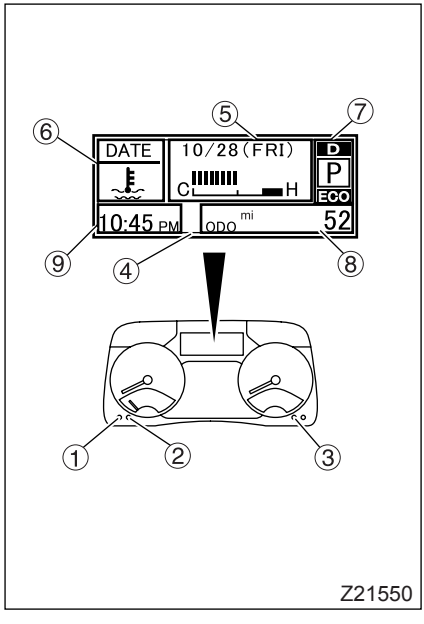


- If the DEF tank becomes completely empty, the following warning is issued and the driving performance is restricted as follows:
  - The DEF level warning lamp ② continues to flash.
  - All segments from F to E of the DEF level indicator flash quickly.
  - The warning lamp, which has been lit, starts flashing.
  - ENG SYS is in red.
  - The buzzer sounds loudly.
  - Speed limitation will be activated within 60 minutes or immediately after special conditions as follows.
    - When refuelling.
    - When applying the parking brake.
    - When restarting the engine.

    A driving restriction automatically engages, locking the gear in 1st or reverse, so the vehicle can be driven only slowly.

The driving restriction is cancelled as soon as the DEF tank is replenished.

Multi-information system

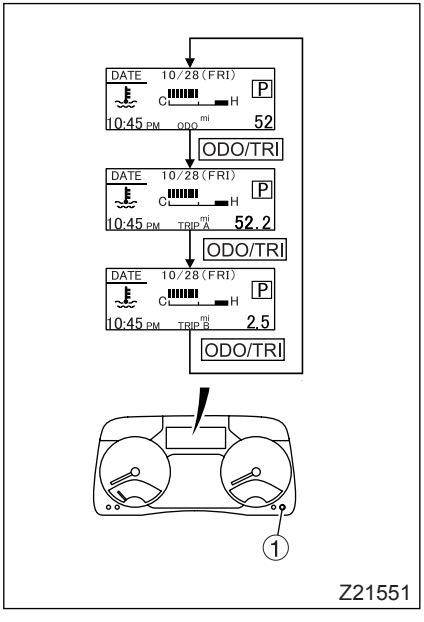


1 Outline of multi-information system

① MODE switch
② SELECT switch
③ SET/RES switch
④ Multi-information display
⑤ Information area
⑥ Warning/indicator area
⑦ Transmission information area
⑧ Odometer/trip meter area
⑨ Time/outside temperature area (outside temperature indication is available for vehicles with a fully automatic air conditioner)

The multi-information system indicates the following types of information on the multi-information display located on the meter cluster.

- Information area: coolant temperature, amount of PM in the DPF, and vehicle-related information including the maintenance schedule.
- Warning/indicator area: various warnings and indicators. ⇨ P. 6-22
- Transmission information area: gear positions selected by the DUONIC® system and other transmission-related information. ⇨ P. 5-23
- Odometer/trip meter: total running distance and individual trip distance.
- The MODE, SELECT, and SET/RES switches are used for selection, setting, and confirmation on each screen.



2 Odometer/trip meter

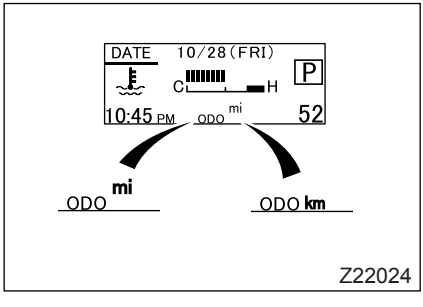
When the starter switch is turned to “ON”, either “ODO” (odometer) or “TRIP” (trip meter) is displayed. The display toggles between “ODO” and “TRIP” each time the ODO/TRIP switch ① is pressed.

- **ODO (odometer)**

Indicates the total distance covered by the vehicle to the nearest mile.

- **TRIP (trip meter)**

Indicates the distance covered by the vehicle from a selected point to the present point to the nearest 0.1 mile.
The trip meter has two options: TRIP “A” and TRIP “B”. The indications are independent of each other.
To reset the trip meter to zero, press the ODO/TRIP switch for at least 1 second. The count of only the currently displayed option will return to “0.0”.



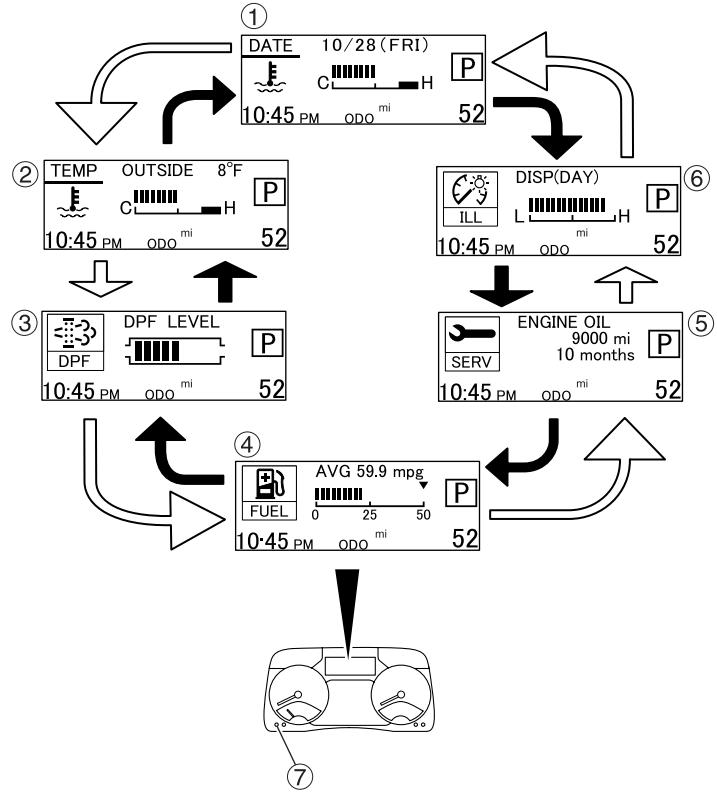
NOTE:
If the unit of fuel mileage is changed, the unit for the odometer and trip meter indication changes accordingly. For information on the fuel mileage display unit, see page 6-14.

3 Display mode selection and settings

3.1 Display mode selection

You can select a desired display mode by pressing the MODE switch ⑦.

Display modes



: Short press (up to 1 second) on MODE switch

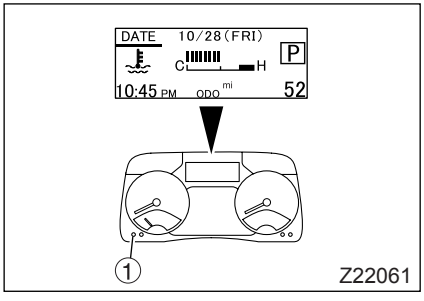
: Long press (1 second or longer) on MODE switch

Z21552

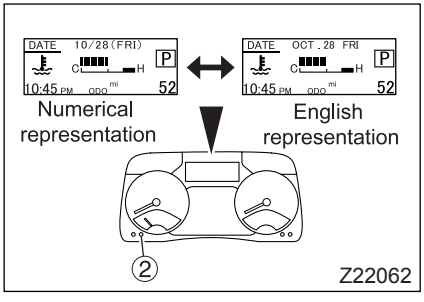
No.	Display mode	Ref. page
①	Calendar and clock	6-10
②	Outside air temperature (vehicles with fully automatic air conditioner)	6-12
③	DPF monitor	6-13
④	Fuel mileage information	6-14
⑤	Maintenance information	6-16
⑥	Illumination intensity (brightness adjustment)	6-20

3.2 Calendar and clock

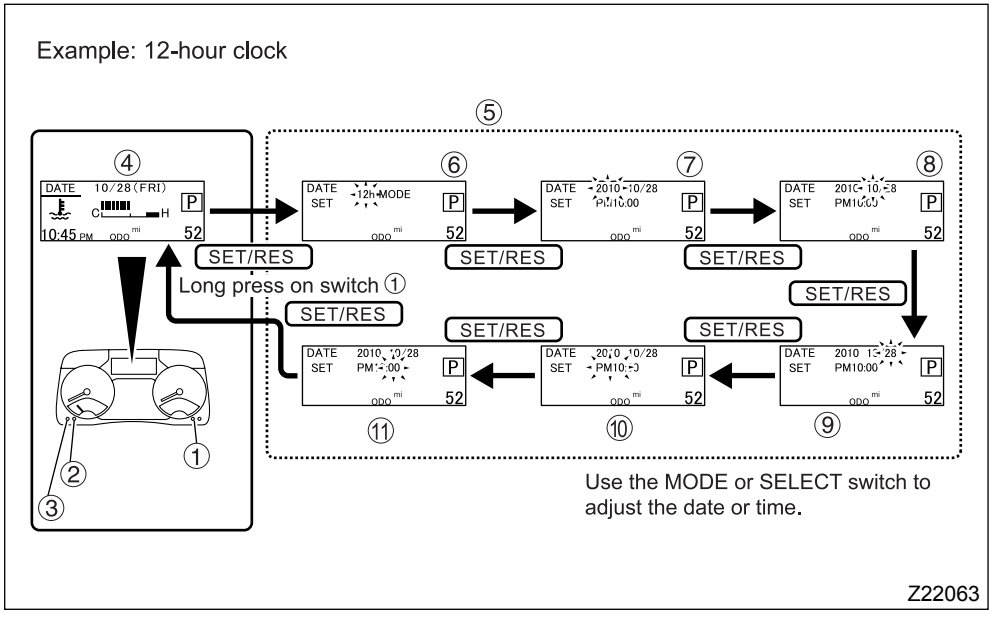
- **Date/time**
  Press the MODE switch ① to display the date and time on the screen.



- If you press the SELECT switch ② while the date and time are displayed on the screen, the month part of the date will change from numerical representation to English representation.



- **Date and time adjustment**



1. Give a long press on the SET/RES switch ① while the date and time indication ④ is displayed on the screen. The adjustment screen ⑤ will appear.
2. Each time you press the SET/RES switch, one of the indication items is selected in the sequence shown below with the selected item flashing. The cycle repeats if you press the switch repeatedly.
   Initial display screen (date/time display) ④ → Time display mode ⑥ → Year ⑦ → Month ⑧ → Day ⑨ → Hour ⑩ → Minute ⑪ → Initial display screen
   While the item you want to set is flashing, press the MODE switch ③ or SELECT switch ② to make adjustments.

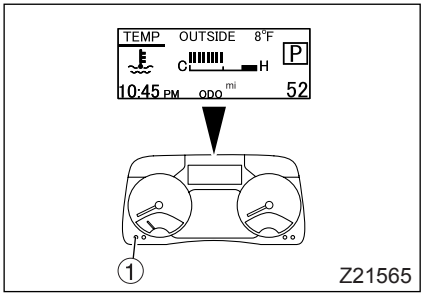
- The 12-hour clock will be displayed if you select "12 h" on the time display mode screen; selecting "24 h" will change the display to the 24-hour clock.
- Press the SELECT switch to advance the indication. Each long press (0.5 second or longer) will move the value forward by 2 years, 2 months, 2 days, 2 hours, or 10 minutes.
- Press the MODE switch to retard the indication. Each long press (0.5 second or longer) will move the value backward by 2 years, 2 months, 2 days, 2 hours, or 10 minutes.

3. After completing necessary adjustments, press the SET/RES switch.
4. Press the SET/RES switch as many times as necessary to go back to the initial display screen.

- **Adjusting the clock to time signals**
  While the display is in the calendar and clock mode, you can adjust the clock to a time signal by pressing the SET/RES switch and releasing the switch simultaneously with a time signal.

  Example:
  The clock will be adjusted to 11:00 if its current indication is between 11:00 and 11:29.
  The clock will be adjusted to 12:00 if its current indication is between 11:30 and 11:59.

NOTE:
- *If the date is set, the day of the week will be automatically adjusted to the new date.*
- *The calendar can be adjusted for the period between January 1, 2009 and December 31, 2039.*



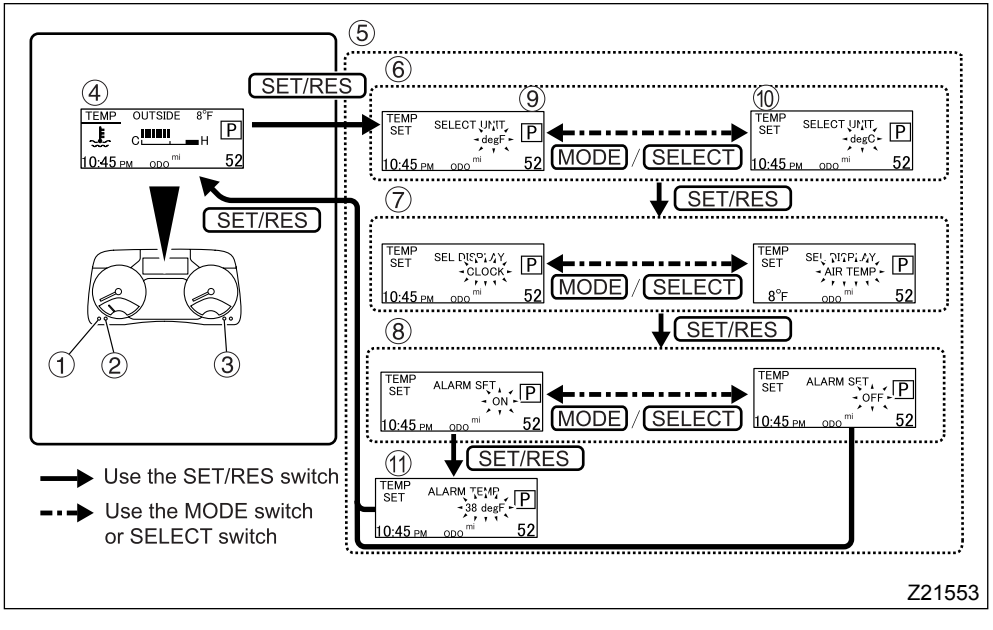
3.3 Outside air temperature <vehicles with fully automatic air conditioner>

If you select the outside air temperature mode by pressing the MODE switch ①, the outside air temperature around the front of the cab is indicated.

NOTE:
As the temperature is sensed at the outside air inlet on the cab, the indicated temperature may differ from the actual outside air temperature under certain traffic or air conditioner operating conditions.

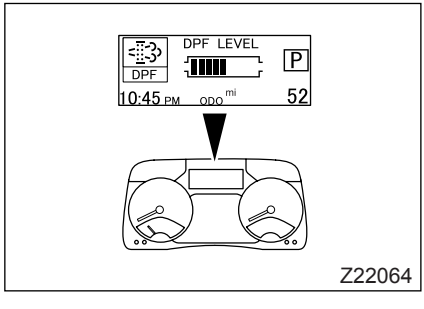
- The following selections and settings are possible for the outside air temperature mode:
  - Selecting the unit of temperature display between degree Fahrenheit (°F) and degree Celsius (°C)
  - Selecting the bottom-left display on the screen between temperature and time
  - Setting an alarm when the outside air temperature falls below a preset temperature

- **Selections and settings in outside air temperature mode**



1. Select the outside air temperature mode ④ by pressing the MODE switch ①.
   Give a long press on the SET/RES switch ③ to display the adjustment screen ⑤.
2. Select the adjusting/setting item using the SET/RES switch. Each time you press the SET/RES switch, the display changes in the following sequence:
   Temperature unit selection ⑥ → Time/temperature selection ⑦ → Temperature alarm on/off setting ⑧

- The temperature unit can be changed between degree Fahrenheit (°F) ⑨ and degree Celsius (°C) ⑩ by pressing the MODE switch or SELECT switch ② on the temperature unit selection screen ⑥.
- The bottom-left display can be changed between temperature and time indications by pressing either the MODE switch or SELECT switch on the time/temperature selection screen ⑦.
- Method for setting temperature alarm on/off
  On the temperature alarm on/off setting screen, press the MODE switch to activate the outside air temperature alarm and press the SELECT switch to deactivate the alarm. Once the alarm is activated, you can set an alarm temperature between 23°F and 41°F ⑪ (–5°C and 5°C). The alarm is issued by the temperature indication at the bottom-left on the screen flashing for about 1 minute when the set temperature is reached.



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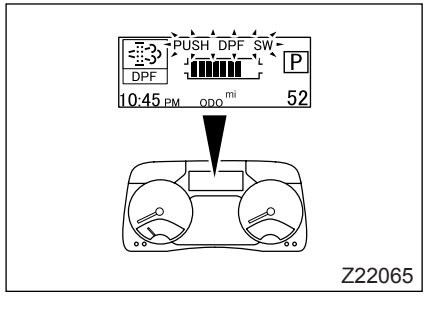
3.4 DPF monitor

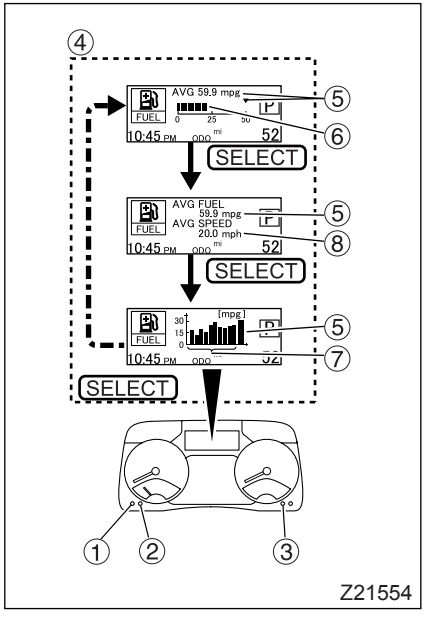
This display mode indicates the amount of PM in the DPF, a prompt for performing parked DPF regeneration, and the predicted time until completion of parked DPF regeneration. If the situation requires, the DPF monitor also provides the driver with necessary warnings and indications.



Z22065

- If the DPF contains PM equivalent to 7 or more segments of the indicator, a message is displayed prompting you to perform the parked DPF regeneration.

See page 5-51 for details about the DPF.



3.5 Fuel mileage information

The fuel mileage information includes: average fuel mileage ⑤, real-time fuel mileage ⑥, instantaneous fuel mileage ⑦, and average speed ⑧.

- The average fuel mileage indicates the average of the fuel mileage from the time it was last reset to the present.
- The real-time fuel mileage indicates the fuel mileage in the last 0.5-second period.
- The average vehicle speed indicates the average speed at which the vehicle has been driven since the last reset.
- The instantaneous fuel mileage is the fuel mileage over the past 1-minute period.

- **How to switch the display**

1. Press the MODE switch ① to select the fuel mileage information mode ④.
2. Press the SELECT switch ② to change the display. Each time you press the SELECT switch, the following pairs of information will be displayed one after another.

- Average mileage and real-time mileage
- Average mileage and average vehicle speed
- Instantaneous mileage and average mileage

- **How to reset the mileage and speed data**
  You can reset both the average vehicle speed and average mileage data by giving a long press (1 second or more) on the SET/RES switch ③.

- **Adjusting the correction coefficient for fuel mileage data and selecting the unit of fuel mileage display**

If necessary, you can change the correction coefficient for fuel mileage data and the unit of fuel mileage display as follows.

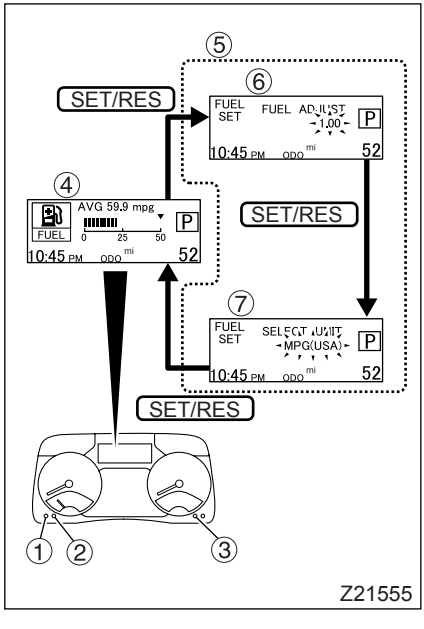
- Usually, there is no need to change the correction coefficient for fuel mileage data. However, the coefficient should be changed if you notice any significant difference between the actual and indicated fuel mileages. Increasing the correction coefficient value will result in larger indications for all of the average, real-time, and instantaneous fuel mileages. Reducing the value decreases them.

Default value of correction coefficient	1.00

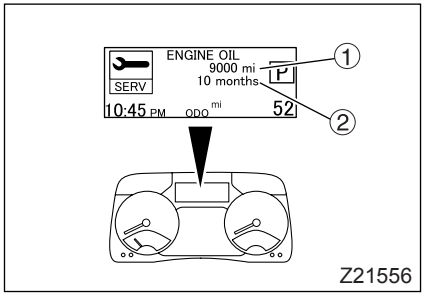
NOTE:
If you press the SET/RES switch for more than 1 second in the correction coefficient change screen, the coefficient will return to the default value.

- The fuel mileages can be indicated in units of "mpg", "km/l", or "l/100 km".
  - "mpg" indicates the miles covered by the vehicle on one gallon of fuel.
  - "km/l" indicates the kilometers covered by the vehicle on one liter of fuel.
  - "l/100 km" indicates the amount of fuel in liters that the vehicle has consumed to cover a distance of 100 kilometers.

NOTE:
If the unit for fuel mileage is changed, the unit for the odometer and trip meter indication changes accordingly.
- *If "km/l" or "l/100 km" is selected, the unit for the odometer and trip meter indication becomes "km".*
- *If "mpg (USA)" or "mpg (UK)" is selected, the unit for the odometer and trip meter becomes "mi (mile)".*



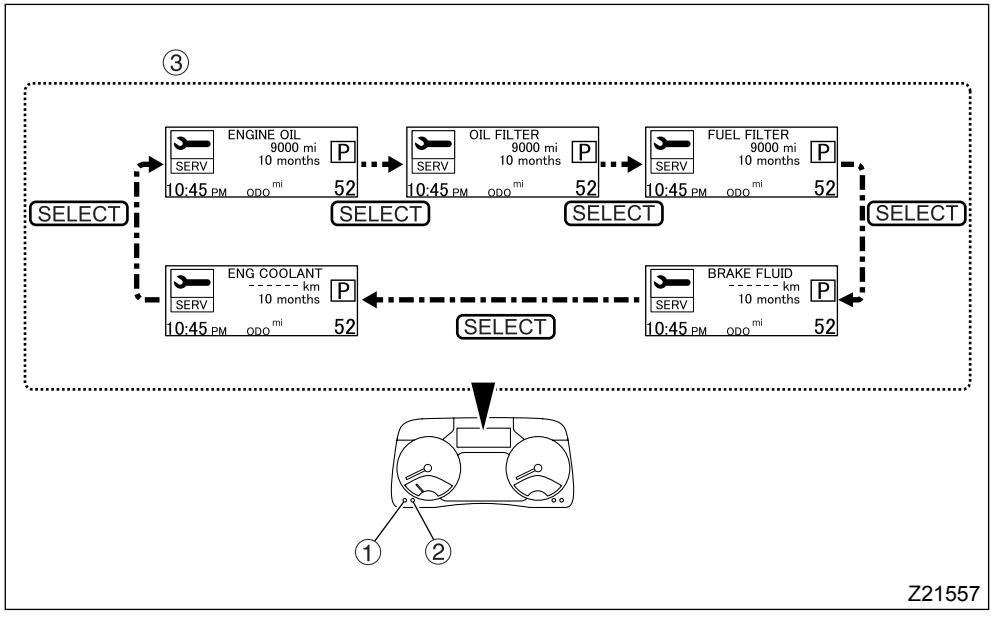
1. Press the MODE switch ① to select the fuel mileage information mode ④.
2. Press the SET/RES switch ③ to display the adjustment screen ⑤, then press the SET/RES switch. Each time you press the switch, the display toggles between the fuel mileage correction coefficient (FUEL ADJUST) ⑥ and the fuel mileage unit (SELECT UNIT) ⑦.
3. With the desired display selected, press the SELECT switch ② or MODE switch to change the correction coefficient or fuel mileage unit.
   - Press the SELECT switch to increase the correction efficient, or the MODE switch to decrease it. Continue to press each switch if you want to change the value quickly.
   - Use the SELECT switch to change the fuel mileage unit. The unit changes in the following sequence each time you press the switch:
     "mpg (USA)" → "mpg (UK)" → "km/l" → "l/100 km"
4. Press the SET/RES switch to return to the initial display screen.



3.6 Maintenance information

If you select this mode, the multi-information display indicates the running distance ① and the number of months ② since the distance was last reset after replacing oils, fluids, or filter elements according to your selection of screen.

- **Selection of maintenance information screens**



1. Press the MODE switch ① to select the maintenance information mode ③.
2. Press the SELECT switch ②. Each time you press the switch, the screen changes to the one for a new replacement item in the following sequence, beginning with the previously displayed screen:
   ENGINE OIL → OIL FILTER (engine oil filter) → FUEL FILTER → BRAKE FLUID → AIR FILTER → T/M OIL (transmission oil and clutch control fluid) → HUB GREASE (wheel hub bearing grease) → DIFF OIL (differential oil) → P/S OIL (power steering oil) → ENG COOLANT (engine coolant)

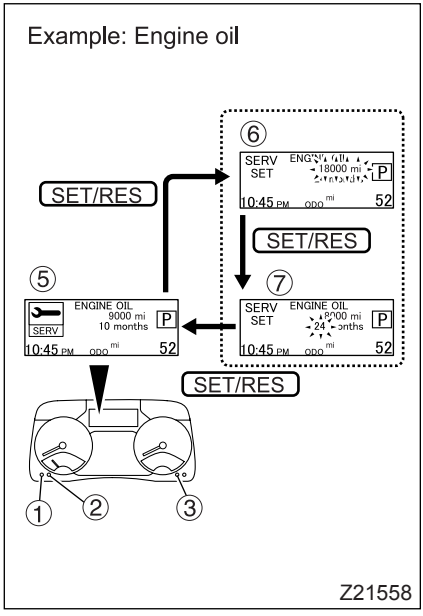
- **How to set replacement intervals**

Set the replacement interval for each replacement item according to the table below.

Item	Replacement interval
Engine oil	Every 30,000 km (18,000 miles) or every 12 months (Every 15,000 km (9,000 miles) at the severe condition)
Engine oil filter (OIL FILTER)	Every 30,000 km (18,000 miles) or every 12 months
Fuel filter (FUEL FILTER)	Every 30,000 km (18,000 miles) or every 12 months
Brake fluid	Every 24 months
Air filter	Every 30,000 km (18,000 miles) or every 12 months
Transmission oil and clutch control fluid (T/M OIL)	Every 60,000km (36,000miles) or every 24 months
Wheel hub bearing grease (HUB GREASE)	Every 60,000 km (36,000 miles) or every 12 months
Differential gear oil (DIFF OIL)	Every 60,000km (36,000miles) or every 24 months
Power steering oil (P/S OIL)	Every 30,000 km (18,000 miles) or every 12 months
Engine coolant (ENG COOLANT)	Every 24 months

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

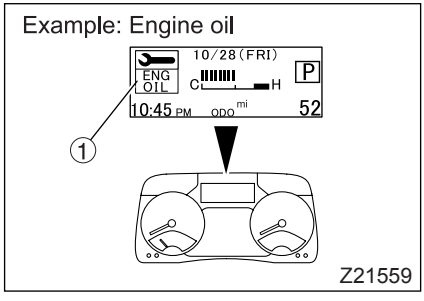
- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*



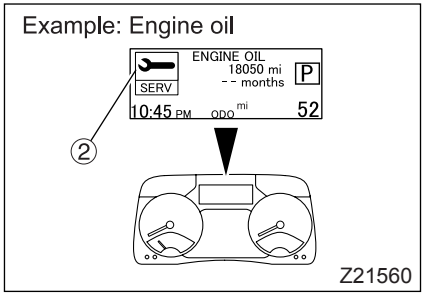
1. Press the MODE switch ① to select the maintenance information mode ⑤.
2. Press the SELECT switch ② to select the screen for the replacement item for which you want to set the interval.
3. Press the SET/RES switch ③ to select the interval distance setting screen ⑥ (with “mi” indicated). The numerals indicating the distance blink once this screen is selected.
4. Press the SELECT switch or MODE switch to change the distance.
- Each time you press the SELECT switch, the distance value increases by 500 miles (1,000 km).
- Each time you press the MODE switch, the distance value decreases by 500 miles (1,000 km).
- A long press on the SELECT or MODE switch increases or decreases the distance value by 2,500 miles (5,000 km), respectively.
- If the replacement interval is controlled by the period of time (not by the distance), leave the distance space blank (“---- mi”).

5. Press the SET/RES switch ③ to select the interval period setting screen ⑦ (with “month” indicated). The numerals indicating the period of time blink once this screen is selected.
6. Press the SELECT switch or MODE switch to change the value of the period.
- Each time you press the SELECT switch, the period increases by 1 month.
- Each time you press the MODE switch, the period decreases by 1 month.
- A long press on the SELECT or MODE switch increases or decreases the period by 2 months, respectively.
- If the replacement interval is controlled by the distance (not by the period of time), leave the period space blank (“-- month”).

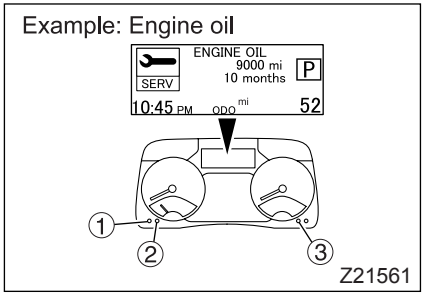
7. Press the SET/RES switch to return to the initial display screen.
8. In the initial display screen, give a long press on the SET/RES switch until “0 mile” and “0 months” are indicated.



- **Maintenance alarm indication**
- For each item for which you have set the replacement interval, an alarm ① is indicated at 600 miles (1,000 km) or 1 month before the set distance or period of time is reached.
  If this condition is met for an item, an alarm will be indicated for the item every time the starter switch is turned to “ON”. The alarm indication goes out as soon as the parking brake is released. If there are multiple alarms to indicate, they are indicated one after another, each being indicated for 3 seconds.



- If a periodic replacement item is used continuously even after the set distance or period is reached, the maintenance information symbol will turn to amber ②.



- **Resetting of maintenance information**

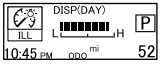
After replacing a periodic replacement item such as the oil, filter element, or engine coolant, reset the maintenance information for the item as follows:

1. Press the MODE switch ① to select the maintenance information mode.
2. Press the SELECT switch ② to select the item for which the maintenance information is to be reset.
3. Give a long press (1 second or more) on the SET/RES switch ③ to reset the maintenance information.

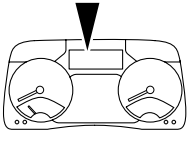
NOTE:
Do the same procedure after replacing any periodic replacement item.

Example: DISP indications

<Light switch in “OFF” position>



<Light switch in ≣D◇≣ or ≣D position>



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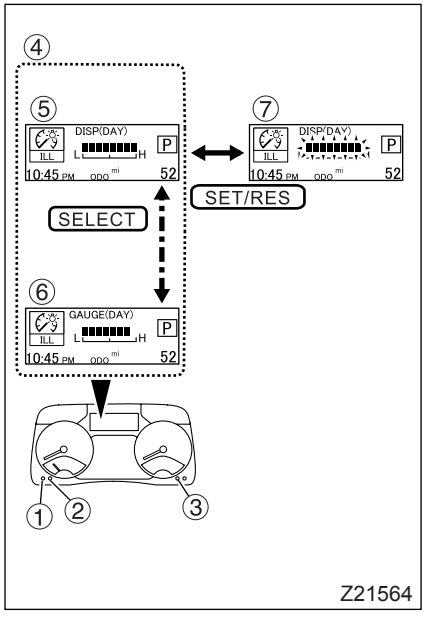
3.7 Illumination intensity (brightness adjustment)

- **Selection and adjustment of illumination intensity**
- Both the illumination intensity screen and the adjustment screen provide different displays between the time when the light switch is in the “OFF” position and the time when the switch is in the ≣D◇≣ or ≣D position as follows:
  - When the light switch is in the “OFF” position, the multi-information display indicates “DISP (DAY)” or “GAUGE (DAY)”. In this state, the brightness of the displays or gauges under no illumination condition (daytime) is adjustable.
  - When the light switch is in the ≣D◇≣ or ≣D position, the multi-information display indicates “DISP (NIGHT)” or “GAUGE (NIGHT)”. In this state, the brightness of displays or gauges when lit (nighttime) can be adjusted.
- The brightness of the following display and gauges can be adjusted as follows.
  - When “DISP (DAY)” or “DISP (NIGHT)” is displayed:
    Multi-information display
  - When “GAUGE (DAY)” or “GAUGE (NIGHT)” is displayed:
    DEF level indicator
  - When “GAUGE (NIGHT)” is displayed:
    Illumination of the air conditioner control panel and the scales of the speedometer, tachometer, and fuel gauge (when the light switch is in the ≣D◇≣ or ≣D position)



1. Press the MODE switch ① to select the illumination intensity mode ④.
2. Press the SELECT switch ②. Each time you press the switch, the display toggles between “DISP (DAY)” ⑤ and “GAUGE (DAY)” ⑥. When the light switch is in the ≡D◐≡ or ≣◑ position, the display toggles between “DISP (NIGHT)” and “GAUGE (NIGHT)”.
3. With the item to be adjusted displayed on the screen, press the SET/RES switch ③ to advance to the adjustment screen ⑦.
4. Adjust the brightness using the MODE switch or SELECT switch.
   - Press the MODE switch to reduce the brightness.
   - Press the SELECT switch to increase the brightness.
5. Return to the illumination intensity display by pressing the SET/RES switch.

Warning/indicator telltale

The warning/indicator telltale function provides warning and indicator indications on the multi-information display in the following situations:

- When a problem occurs with a vehicle system
- When a system is activated
- When the distance/period remaining before the replacement time becomes short

1 Telltale indications

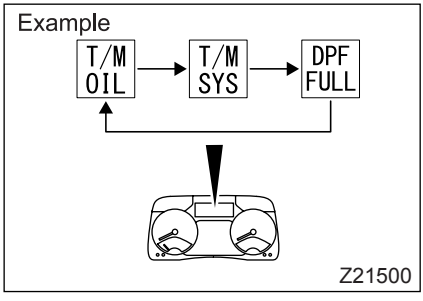
1.1 Indication colors

Warnings or indicators are displayed in any of the following colors according to their categories:

- Red
- Amber
- Black

1.2 If there are multiple warnings

If there are multiple warnings to display, all of these warnings are displayed one after another and repeatedly, each being displayed for 3 seconds.



2 Categories of warnings and indicators

⚠ WARNING

Red indications require you to immediately stop the vehicle at a safe place and take necessary actions. Continuing to drive without taking necessary actions could lead to a serious accident.

⚠ CAUTION

Amber indications alert you to a malfunction or degraded functionality of components. You should continue to drive carefully for the rest of the trip and then take necessary actions as soon as possible.

2.1 Red and amber indications

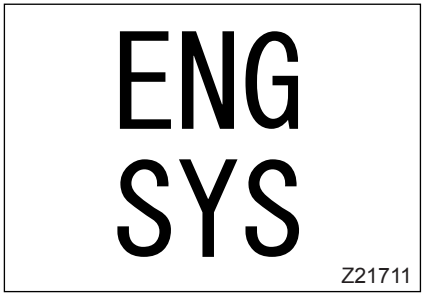
Indication	Warning/indicator	Condition for lighting/flashing	Ref. page
ENG SYS (red)	Engine system warning	Engine power is being automatically restricted.	6-25
ENG SYS (amber)	Engine system warning	Engine must be inspected.	6-25
T/M OIL (red)	Transmission oil temperature warning	Clutch control fluid or the clutch temperature is too high. *	6-25
T/M SYS (red)	Transmission control warning	DUONIC® system is faulty.	6-26
T/M SYS (amber)	Transmission control warning	DUONIC® system is faulty (but automatic or manual gear shifting is possible).	6-26
CAB TILT (red)	Cab tilt warning	Cab tilt lock is not completely engaged. (A buzzer will sound at a vehicle speed of 5 km/h (3 mph) or higher.)	12-10
SAM (red)	SAM warning	Failure has occurred in electric control system of SAM.	6-26
SAM (amber)	SAM warning	Failure has occurred in electric control system of SAM (a failure that requires inspection of exterior lamps).	6-26
DPF FULL (amber)	Overloaded DPF warning	DPF contains too much PM.	5-52
METER (amber)	Meter cluster warning	Electrical system of meter cluster is faulty.	6-27
ENG OIL (amber)	Engine oil level warning	The amount of fuel mixed with engine oil has exceeded the upper limit. (Some fuel is intentionally mixed with engine oil to burn PM in DPF.)	6-27
WATER SEPR (amber)	Fuel filter warning	Water in fuel filter has increased.	12-51

* *The following actions will cause excessive slipping of the clutch and heat generation:*

- *Holding the stopped vehicle on an up slope using only the accelerator pedal and moving the vehicle very slowly for a long time.*
- *Depressing the accelerator pedal when the vehicle is stopped with the gearshift lever in the “D” or “R” position and the brake pedal depressed or the parking brake applied.*
- *Moving the vehicle very slowly repeatedly to drive over a high step or curb.*

2.2 Black indications

Indication	Warning/indicator	Condition for lighting/flashing	Ref. page
PTO	<Vehicles with transmission PTO> PTO indicator	Lights when transmission PTO is engaged.	5-46
PTO READY	<Vehicles with transmission PTO> PTO engagement preparation indicator	Lights when transmission PTO is preparing to engage.	5-46
ENG OIL	Engine oil replacement alert indicator	Distance or period remaining before scheduled engine oil replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
OIL FILTER	Engine oil filter replacement alert indicator	Distance or period remaining before scheduled engine oil filter replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
FUEL FILTER	Fuel filter replacement alert indicator	Distance or period remaining before scheduled fuel filter replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
BRAKE FLUID	Brake fluid replacement alert indicator	Distance or period remaining before scheduled brake fluid replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
AIR FILTER	Air cleaner replacement alert indicator	Distance or period remaining before scheduled air cleaner replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
T/M OIL	Transmission oil replacement alert indicator	Distance or period remaining before scheduled clutch control fluid and transmission oil replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
HUB GREASE	Wheel hub bearing grease replacement alert indicator	Distance or time remaining before scheduled wheel hub bearing grease replacement has become shorter than 1,000 km (600 miles) or 1 month	6-16
DIFF OIL	Differential gear oil replacement alert indicator	Distance or period remaining before scheduled differential gear oil replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
P/S OIL	Power steering oil replacement alert indicator	Distance or period remaining before scheduled power steering oil replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16
ENG WATER	Engine coolant replacement alert indicator	Distance or period remaining before scheduled engine coolant replacement time has become shorter than 1,000 km (600 miles) or 1 month	6-16



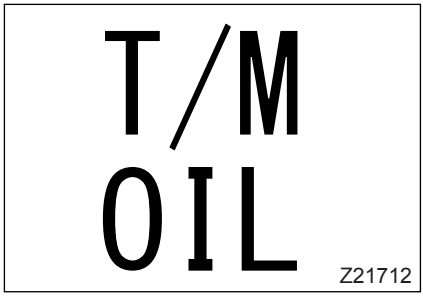
2.3 Engine system warning

- **Red warning**

If an engine system warning is shown, have the vehicle inspected by the nearest authorized dealer.

- **Amber warning**

If an engine system warning is shown, have the vehicle inspected by the nearest authorized dealer.



2.4 Transmission oil temperature warning

- **The warning appears and the buzzer sounds three times**

This warning is displayed when the clutch control fluid temperature is too high.
If this indication appears while driving, stop the vehicle in a safe place and do the following:

1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Run the engine at a speed slightly higher than the idling speed. If the indication goes out, you may continue driving. If the indication remains displayed, contact your nearest authorized dealer.

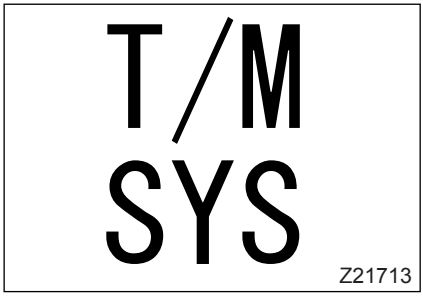
- **The warning appears and the buzzer continues sounding**

The clutch temperature is abnormally high because the clutch would slip.
If the warning appears while driving, do the following:

1. Select a lower gear than usual in the manual shift mode and start the engine.
2. If the indication remains displayed, stop the vehicle in a safe place and be sure to fully apply the parking brake.
3. Place the gearshift lever in the “P” position. Depress the accelerator pedal to run the engine at a speed slightly higher than the idling speed in order to cool down the engine.
4. If the warning disappears and the buzzer stops, you may continue to drive. If the warning remains on, contact an authorized dealer.

⚠ CAUTION

Do not stop the engine without letting the transmission cool down, otherwise the transmission may seize up. Stop the engine only after the T/M OIL warning has disappeared from the screen.



2.5 Transmission control warning

- **Red warning**

The red transmission control warning is displayed when the DUONIC® system is faulty.
If this indication appears while driving, stop the vehicle in a safe place and do the following:

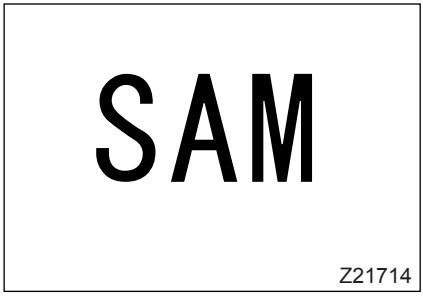
1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Turn the starter switch to “ACC” or “LOCK”.
3. Turn the starter switch to “ON”.
4. If the indication remains displayed, avoid continuing to drive and contact your nearest authorized dealer.

- **Amber warning**

The amber transmission control warning is displayed when the DUONIC® system is faulty (but automatic or manual gear shifting is possible).

- If driving in the automatic shift mode is possible, you may continue to drive but must have the vehicle inspected by an authorized dealer as soon as possible.
- If no automatic gearshift takes place when driving in the automatic gearshift mode, stop the vehicle in a safe place and do the following:

1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Turn the starter switch to “ACC” or “LOCK”.
3. Turn the starter switch to “ON”.
4. If the warning remains displayed but driving in the manual gearshift mode is possible, take the vehicle to an authorized dealer for inspection as soon as possible.
5. If the warning remains displayed and gear shifting is impossible in the manual gearshift mode, contact your nearest authorized dealer.



2.6 SAM warning

NOTE:
SAM, which stands for Signal Detection and Actuation Module, is a module that integrates the control and power distribution functions for the electric equipment of the cab and truck body.

- **Red warning**

The red SAM warning is displayed when a failure occurs in the electric control system of the SAM.
If this warning appears while driving, stop the vehicle in a safe place and do the following:

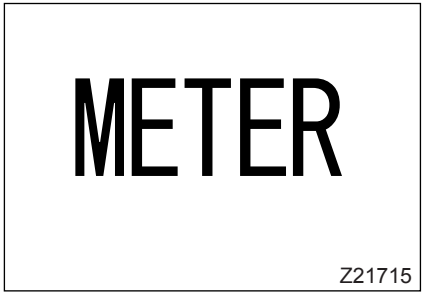
1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Turn the starter switch to “LOCK”.

3. Turn the starter switch back to “ON”. If the indication goes out, there are no problems. If the warning remains displayed, contact your nearest authorized dealer immediately.

- **Amber warning**

The amber SAM warning is displayed when a failure (of a type that requires inspection of exterior lamps) occurs in the electric control system of the SAM.
If this warning appears while driving, stop the vehicle in a safe place and do the following:

1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Turn the starter switch to “LOCK”.
3. Check the exterior lamps for abnormalities. Replace a blown lamp if any. ⇨ P. 13-18
4. Turn the starter switch back to “ON”.
5. Switch on the replaced lamp. If the warning goes out, there is no remaining problem with the SAM.
6. If the warning remains displayed, contact an authorized dealer as soon as possible.



2.7 Meter cluster warning

This warning is displayed when the electrical system of the meter cluster is faulty.
If this warning appears while driving, stop the vehicle in a safe place and do the following:

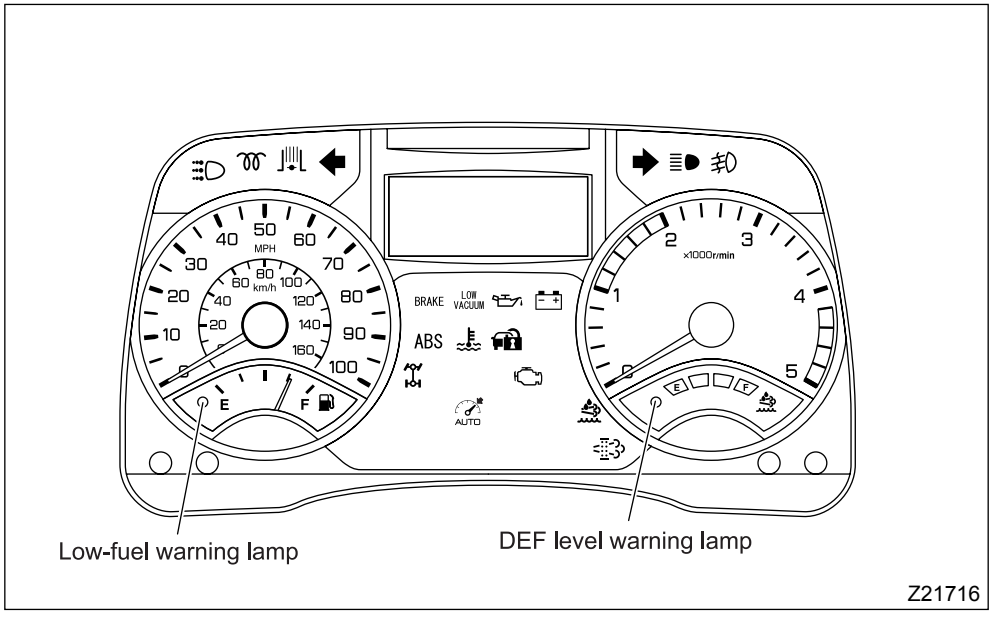
1. Firmly apply the parking brake and move the gearshift lever to “P”.
2. Turn the starter switch to “LOCK”.
3. Turn the starter switch back to “ON”. If the warning goes out, there are no problems.
4. If the warning remains displayed, do not continue to drive but contact your nearest authorized dealer immediately.

2.8 Engine oil level warning

This warning is displayed when the amount of fuel mixed with engine oil has exceeded the limit.

- If this warning is displayed, replace the engine oil as soon as possible.
- If even more fuel is mixed with engine oil, this warning and the ENG SYS (amber) warning are alternately displayed. If this happens, replace the engine oil immediately.

Warning/indicator lamps



The illustration shows the standard arrangement of the warning and indicator lamps. Some lamps shown here, however, may not be installed on your vehicle.
Illumination of certain warning lamps is accompanied by sounding of a buzzer.

⚠ CAUTION

The red warning lamps, if illuminated, warn you of vehicle component failures and possible danger of accident. Never drive the vehicle while a red warning lamp is illuminated. If any of them light up, stop the vehicle as soon as it is safe to do so and make checks for locating the cause. If necessary, have your vehicle repaired by an authorized dealer.

NOTE:
The red warning lamps may also come on if the engine is started when the battery's performance has decreased. In this event, either charge the battery or replace the battery with a new one.

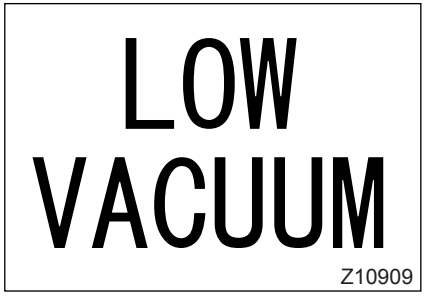
Lamp symbol	Warning/indicator lamp	If illuminates or flashes	Ref. page
	Fuel level warning lamp	Level of fuel in fuel tank excessively low	1-7 6-4
	Turn signal indicator lamp	Turn signal or hazard warning lamps flashing	5-17 5-43
	Headlamp high beam indicator lamp	Headlamp high beams illuminated	5-17
	Exhaust brake indicator lamp	Exhaust brake activated	5-18
	Fog lamp indicator lamp	Fog lamps illuminated	5-44
	Engine preheat indicator lamp	Engine being preheated	5-7
LOW VACUUM	Vacuum pressure warning lamp	Excessively low vacuum in vacuum tank	6-32
BRAKE	Brake warning lamp	Brake fluid at an excessively low level (*) or parking brake activated	6-33
	Charge warning lamp	Problem in battery charging system	6-33
	Engine oil pressure warning lamp	Excessively low engine oil pressure	6-34
	Engine control warning lamp	• Fault in engine control system • Fault in BlueTec® exhaust gas aftertreatment system	6-34
	4WD indicator lamp <FG>	Four-wheel drive (4WD) mode selected	8-3
ABS	ABS warning lamp	Fault in antilock braking system (ABS)	6-35
	Daytime running light indicator lamp	Headlamps (low-beam) illuminated by daytime running light system	5-16
	Engine overheating warning lamp	Coolant temperature abnormally high	6-35
	Cruise control indicator lamp <Vehicles with cruise control>	Cruise control activated	5-37

Lamp symbol	Warning/indicator lamp	If illuminates or flashes		Ref. page
	DPF indicator lamp	Slow flashing (0.5-second interval; amber)	DPF contains a lot of PM	5-51
		Fast flashing (0.25-second interval; amber)		
		Illumination (amber)	Parked DPF regeneration in progress	
		Illumination (green)	Automatic DPF regeneration in progress	
	DEF warning lamp	• Quantity of DEF in DEF tank has fallen too low • Abnormality detected in NOx sensor		5-59
●	DEF level warning lamp	Quantity of DEF in DEF tank has fallen too low		5-59
	Engine immobilizer warning lamp <Vehicles with engine immobilizer>	• Disturbed communication with engine immobilizer starter key • Fault in engine immobilizer		6-36

NOTE:
Illumination of any warning lamp marked (*) is accompanied by sounding of a buzzer.

The warning lamps shown below come on when the starter switch is turned from the “ACC” position to the “ON” position but almost immediately go off.

Lamp symbol	Warning lamp	Operation
BRAKE	Brake warning lamp	Goes off when the parking brake is released. However, when the engine is not in operation, this lamp does not go off even if the parking brake is released.
LOW VACUUM	Vacuum pressure warning lamp	Goes off when engine is started.
	Charge warning lamp	Goes off when engine is started.
	Engine oil pressure warning lamp	Goes off when engine is started.
	Engine control warning lamp	Goes off when engine is started.
ABS	ABS warning lamp	Goes off a few seconds after starter switch is turned to the “ON” position.
	Engine immobilizer warning lamp	Goes off a few seconds after the starter switch is turned to the “ON” position.
	DEF warning lamp	Goes off a few seconds after the starter switch is turned to the “ON” position.
●	DEF level warning lamp	Goes off a few seconds after the starter switch is turned to the “ON” position.
	DEF level indicator lamp	Goes off a few seconds after the starter switch is turned to the “ON” position.



1 Vacuum pressure warning lamp

⚠ WARNING

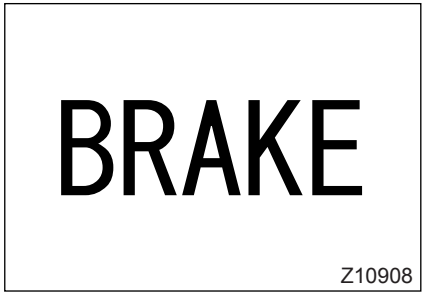
Braking is dangerously sluggish when the vacuum warning lamp is illuminated. For safety, never drive with the vehicle in this condition.

This lamp illuminates when the starter switch is turned to the “ON” position. As long as the lamp goes out when the engine is started, the vehicle may be driven. If illuminated while the engine is running, this lamp signals that the vacuum level in the brake vacuum tank has dropped below the safe limit.

This lamp, when illuminated, signals that the vacuum level in the brake vacuum tank has dropped below the safe limit.

Since braking becomes sluggish under this condition, depress the brake pedal with full force to slow down the vehicle, then pull off the road as soon as it is safe to do so, and perform the following checks:

1. Let the engine run at intermediate RPM until the warning lamp goes out.
2. Check piping and its connections for vacuum leaks.
3. If the lamp does not go out or comes on again soon after it has gone out, the vacuum system is defective and must be repaired. Call an authorized dealer.



Z10908

2 Brake warning lamp

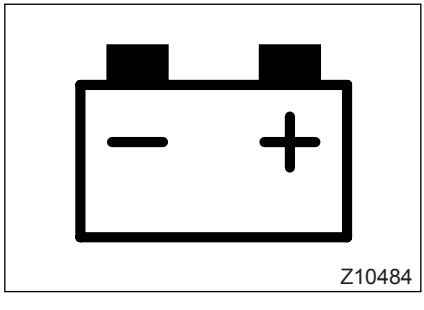
⚠ WARNING

If the brake warning lamp comes on owing to an excessively low level of brake fluid, the brakes will not be fully effective and driving will thus be dangerous. Do not drive the vehicle in this condition.

This lamp lights up when the parking brake lever is pulled or when the brake fluid level drops below the safe limit. If the brake fluid level is too low, a buzzer also sounds. The buzzer stops when the parking brake is applied. Should the lamp remain illuminated even after the parking brake lever has been released or light up during driving, pull off the road as soon as it is safe to do so, and perform the checks below.

With the starter switch in the “ON” position and the engine not running, the warning lamp will stay on even if the parking brake lever is released. The lamp will go out if the engine is started.

1. Check the brake fluid level.
   Replenish the reservoir if the level is too low.
   ⇨ P. 12-36
2. Pump the brake pedal several times to make sure that the fluid level does not drop.
3. If the fluid level drops, it indicates fluid leakage. Call an authorized dealer.

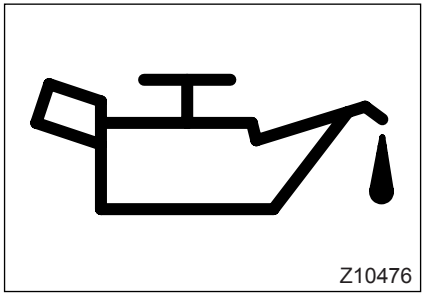

Z10484

3 Charge warning lamp

The charge warning lamp lights up when the starter switch is turned to the “ON” position and goes out as soon as the alternator starts charging the battery after the engine has turned over.

The lamp also lights up if a problem occurs in the battery charging system while the engine is running. If this occurs, pull off the road as soon as it is safe to do so, and perform the following checks.

1. Check the V-belt for breakage and excessive deflection. ⇨ P. 12-61
2. Check for a blown high-current fuse in the battery charging circuit. If blown, replace with a new one. ⇨ P. 13-16
3. If both the above checks have turned out normal, the problem is probably in the battery charging system. Call an authorized dealer.


Z10476

4 Engine oil pressure warning lamp

The engine oil pressure/level warning lamp lights up when the starter switch is turned to the “ON” position and goes out as soon as the engine is turned over. If the lamp lights up while the engine is running, the cause may be an excessively low engine oil pressure. Pull off the road as soon as it is safe to do so, and perform the following checks.

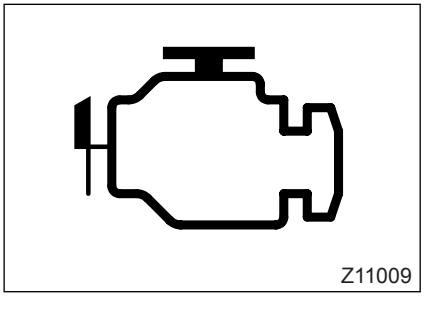
1. Check the engine oil level. Add if insufficient.
⇨ P. 12-23
2. Check various parts of the engine for any sign of oil leaks.
3. If the oil level is normal and there are no oil leaks, the problem is in the lubrication system. Call an authorized dealer.

⚠ CAUTION

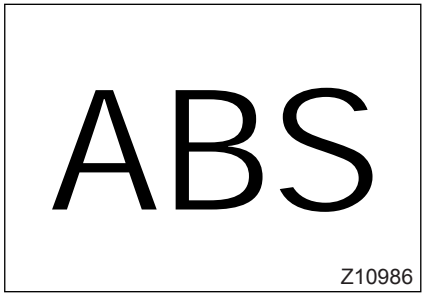
Never continue driving with the lamp illuminated. The engine could seize up.

5 Engine control warning lamp

This lamp comes on when the starter key is turned to “ON”. It should go out when the engine starts.


Z11009

If this lamp comes on at any other time, there is a fault in the exhaust gas aftertreatment. Have the vehicle inspected by an authorized dealer.



6 ABS warning lamp

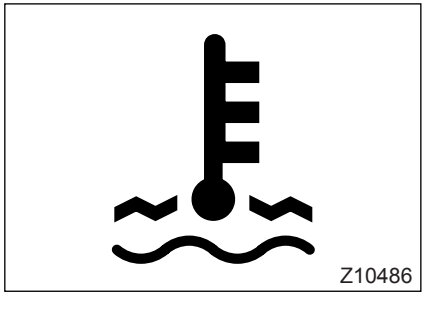
This lamp comes on when the starter key is turned to “ON”. It should go out a few seconds later. If the lamp comes on again, this indicates there is a malfunction in the antilock braking system (ABS). Should this lamp illuminate during driving, stop the vehicle in a safe place and perform the following inspection.

1. Turn the starter key to the “OFF” position and then to the “ON” position again.
2. Determine the system condition as follows:

- The system is normal if the warning lamp goes out a few seconds later.
- The system is faulty if the warning lamp stays on for longer than a few seconds or it goes off but comes on again.
- The system is normal if the warning lamp goes off in a few seconds after the starter key is turned to “ON”. The system is also normal if the warning lamp does not go off a few seconds but then goes off as soon as the vehicle is started.

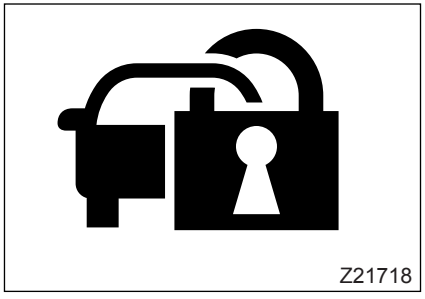
3. If the system is found to be faulty, have the system repaired by an authorized dealer as soon as possible.

NOTE:
Even with the ABS faulty and the warning lamp remaining lit, the normal brake system is still functioning satisfactorily. Only the ABS function is lost. Drive with great care on slippery surfaces with the vehicle in this condition.



7 Engine overheating warning lamp

- This lamp comes on if the engine coolant temperature becomes abnormally high. When this lamp illuminates, the engine power is limited, but the vehicle can still be driven.
- If a buzzer sounds while this lamp is illuminated and the DATE indication (red) is shown on the multi-information display, the engine has overheated. ⇨ P. 13-8


Z21718

8 Engine immobilizer warning lamp

This lamp should normally come on when the starter switch is turned to “ON” and go out a few seconds later. If the lamp fails to go out, communication with the engine immobilizer starter key may be obstructed or the engine immobilizer itself may be faulty. In this case, perform the following inspection.

8.1 When the engine cannot be started

- Check whether a metal piece or another key is in contact with the engine immobilizer starter key. If you find any metal piece or another key touching the starter key, separate them, turn the starter switch back to “ACC” or “LOCK”, and then try starting the engine.
- The engine immobilizer is normal if the engine can be started and the warning lamp goes out.
- If the engine cannot be started and the warning lamp remains lit, try starting the engine using another registered starter key. If you still cannot start the engine, the engine immobilizer is probably faulty; contact an authorized dealer.

8.2 When the engine can be started

- Turn the starter switch back to “ACC” or “LOCK” and then restart the engine.
- If the warning lamp goes out, the engine immobilizer is normal.
- If the engine cannot be started and the warning lamp remains lit, the engine immobilizer is probably faulty. Contact an authorized dealer as soon as possible.

7. Starting and driving

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Tips for improving fuel economy 7-7
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Vehicles with limited slip differential 7-17
Loading cargo 7-19

Precautions when setting the vehicle in motion

- Do not carry containers of fuel or spray cans in the cabin.

⚠ WARNING

- **Carrying fuel in the cabin is extremely dangerous because an increase in the cabin temperature could cause fuel vapor to catch fire or cause the container to rupture.**
- **When starting out, do not operate the gearshift lever while holding down the accelerator pedal. Doing so could cause the vehicle to start out suddenly and create the risk of serious accident. When starting out, keep the brake pedal depressed while operating the gearshift lever.**
- **Do not race the engine while stopped. Leaving the gearshift lever in any position other than "P" or "N" could cause sudden acceleration and create the risk of serious accident.**

⚠ CAUTION

- **Unless you keep the brake pedal fully depressed, the vehicle will creep when you place the gearshift lever in the "R" or "D" position ready to start driving. Keep the brake pedal fully depressed while operating the gearshift lever. Release the parking brake after moving the gearshift lever.**
  Unless you keep the brake pedal fully depressed when placing the gearshift lever in the "R" or "D" position, the resulting creep could cause an accident.
- **Keep the brake pedal fully depressed while the display on the gear position indicator is flashing. This is especially important when starting on an uphill road. As the gear is not yet engaged and thus the creep effect is not available while the display is flashing, the vehicle may move backward if the brake pedal is released, which could cause an accident.**

- Do not attach anything to the windshield.
- You should be familiar with how to use the DUONIC® system controls before starting your vehicle. ⇨ P. 5-20
- Check the immediate area around the vehicle, using mirrors as necessary: there should be no persons or obstacles under, in front of, on either side, or behind the vehicle. Be particularly careful when backing up.
  If you wish to back up but cannot confirm safety behind the vehicle using the mirrors, get out of the vehicle and perform the check.
- Check that none of the red warning lamps are lit and no warnings are indicated on the multi-information display. The BRAKE warning lamp will go out when the parking brake is released.
- Fully release the parking brake.
- For safety, always move the gearshift lever into a position from the “P” position while keeping the brake pedal depressed.

Precautions for driving

Observe the following precautions while driving. Should you notice anything unusual about the vehicle, immediately stop the vehicle and inspect the relevant sections to find the cause of the trouble. If you are unable to identify the cause of the trouble or unable to do the repairs yourself, call your nearest authorized dealer.

- Do not stop the engine while the vehicle is moving.

⚠ WARNING

- **Never place the starter switch in any position other than the "ON" position while operating the vehicle.**
  If you turn the starter switch to the "ACC" position, the engine will stop. This is dangerous.
  If the engine stops during driving:
  - **The braking force reduces extremely.**
  - **The power steering system becomes inoperative, rendering steering dangerously sluggish.**
  - **The fuel injection system can malfunction.**
  - **The electrical circuits of the warning lamps, meters, etc. become inoperative, causing electric components to malfunction.**
- **Never use a slope to move the vehicle with the engine stopped. This practice is very dangerous and could lead to an accident because when the engine is stopped, the steering wheel becomes difficult to operate and the brakes become much less effective.**
- **Removing the starter key causes the steering wheel to lock, making it impossible to steer the vehicle.**

- Should the engine stall while the vehicle is in motion, do not panic. Simply depress the brake pedal to slow the vehicle, and pull off the road as soon as it is safe to do so.
- If a red warning lamp comes on, any warning is indicated on the multi-information display, the buzzer sounds, or the vehicle behaves abnormally, stop the vehicle in the nearest safe place and investigate the cause. ⇨ P. 6-28
  If you cannot identify the cause or cannot rectify the problem, contact an authorized dealer.
- Avoid making sharp turns and braking hard except in emergencies. Doing so during high-speed driving could cause the vehicle to tip over.
- Be sure to press the brake pedal with the right foot. Operating the brake pedal with the unaccustomed left foot may delay your reaction in emergencies and cause unforeseen accidents.

- If you notice a strange noise, vibration, or smell, or if steering or braking feels unusual, pull the vehicle off the road as soon as it is safe to do so and check for the source of the trouble. If you cannot determine the cause of the problem and/or cannot rectify it, contact the nearest authorized dealer.
- When driving on narrow streets or when making a turn, keep in mind that the tracking of the front and rear inner wheels is different, and also make sure of rearward safety using the rearview mirrors.
- Remember that the mirrors protrude from the vehicle body. Be careful not to hit pedestrians and obstructions with the mirrors when driving on narrow roads.
  Looking at the mirrors while driving causes your line of vision to move significantly. Be sure to keep paying attention to safety ahead of the vehicle.
- Do not keep the steering wheel turned fully to either side for more than 10 seconds. Doing so could cause the power steering system to malfunction.
- Do not try to forcefully turn the steering wheel when the front wheels are stuck against a curbstone or other object. Doing so could cause the steering gearbox to fail.
- Continuous high-speed driving burdens the engine and other vehicle parts. Allow yourself enough time that you do not need to push the vehicle too hard.
- Perform your pre-operation checks with particular care when you expect to drive at high speeds.
  When continuously driving at high speeds, your sense of speed may become dull. Pay constant attention to your speed, and maintain an adequate distance from the preceding vehicle.
- If a tire bursts or gets punctured while you are driving at high speed, do not panic. Keep a firm grip on the steering wheel and gradually reduce your speed. Stop the vehicle in the nearest safe place. Do not brake sharply. Braking sharply would be dangerous because the steering wheel would be pulled to one side with great force.
- Do not drive your vehicle if a tire has been punctured. Failure to observe this precaution will expose the wheel bolts to excessive force, and this in turn could lead to bolt or wheel damage.

- When driving at high speeds in the rain, it sometimes happens that the tires ride on a film of water and lose contact with the road surface. This is known as “hydroplaning”. If this should happen, you will lose control of both steering and braking. Therefore, be sure to maintain moderate speeds on rainy days.
  Hydroplaning can easily occur if tire tread is worn to the point where the tread pattern is very shallow.
- Do not use a mobile telephone while driving. If you wish to use a mobile telephone, first stop the vehicle in a safe place. Using a mobile telephone while driving could distract your attention from the vehicle and from the road ahead, resulting in an accident.
- Operate the radio and other items of equipment in the cab when the vehicle is stationary. It is dangerous to operate such items of equipment or use a carphone (other than a hands-free type) while driving.
- Do not allow a child to touch the driver’s controls and other equipment. A child’s interference could cause a fault or accident.
- For normal driving, select the “D” position.
  ⇨ P. 5-20
- Do not move the gearshift lever to the “N” or “P” position while the vehicle is in motion. If the gearshift lever were moved to the “N” or “P” position with the vehicle in motion, abnormal sounds and vibration would occur. Also, transmission components could be broken, resulting in a serious accident. Always stop the vehicle before placing the gearshift lever in the “N” or “P” position.
- If the system judges that a manual upshift or downshift would put the engine speed out of the normal rpm range, the gearshift does not take place.
  Adjust the vehicle speed with the accelerator or brakes before making an upshift or downshift with the gearshift lever.
- If you stop the vehicle momentarily, for example, at a red light, be sure to keep the brake pedal depressed. Without the brakes applied, the vehicle will move, although only very slowly, even if the accelerator pedal is not depressed. If you must wait for longer than expected, select the “N” or “P” position and pull the parking brake lever.

- If you stop temporarily when driving uphill, depress the brake pedal and pull the parking brake lever. Do not attempt to stop the vehicle from rolling backwards with the accelerator pedal.

Tips for improving fuel economy

Observe the following precautions to achieve maximum fuel economy and to extend tire life.

- A time of 1 to 2 minutes will be sufficient for warming up the engine.
- Avoid racing the engine as doing so not only wastes fuel but also harms the engine.
- Avoid sudden starts, sudden acceleration, and sudden braking.
- When accelerating, do not wind the engine out before changing gears; instead, change gears before engine speed reaches a high RPM.
- Fuel consumption can be minimized by keeping the tachometer needle in the 1,000 to 2,000 rpm range.
- Fuel consumption can be further minimized by setting the economy mode switch to ON.
- Always shut off the engine when the vehicle is in a stop. Never park the vehicle or leave it with the engine running, even for a short time.
- Try to drive at moderate and constant speeds. Unnecessary acceleration and deceleration causes fuel waste.
- Do not keep the exhaust brake switch <option> in the activation position at all times. Doing so repeatedly decelerates and accelerates the vehicle speed due to frequent operation of the exhaust brake, which reduces fuel economy. Move the exhaust brake switch between the activation and non-activation positions as necessary for road and traffic conditions.
- Always keep the air pressure in tires correctly adjusted. Periodically rotate the tires.
- Use tires of the specified size only. Use of the wrong size tires can interfere with correct DUONIC® (transmission) shift timing and result in poor fuel economy.
- Try to load cargo in a way that minimizes wind resistance. ⇨ P. 7-19
- Be sure to perform the pre-operational checks and periodic inspections.

Braking

When driving downhill, use engine braking as well as exhaust braking <option> in combination with the foot brake. ⇨ P. 7-12

⚠ WARNING

- **When warning lamps LOW VACUUM and/or BRAKE light up, immediately stop the vehicle and perform necessary checks. ⇨ P. 6-29**
- **Avoid sudden braking except in emergency. Sudden application of the brakes generates a large shock, which could cause an accident. Sudden braking will wear down tires and could cause malfunctions in other sections of the vehicle.**
- **Avoid overusing the service brakes as the resultant overheating could cause undesirable fading, which contribute to poor braking.**
- **Do not use the exhaust brake on a wet, frozen, snow-covered, or otherwise slippery road surface when the vehicle is lightly loaded or not loaded. Using the exhaust brake under such conditions could cause the tires to slip on the road surface, resulting in a skid. The tires are particularly liable to slip when the vehicle is traveling downhill.**
- **Reduce speed before negotiating a curve while braking. If the tires slip due to the road surface being slippery or when the vehicle passes over a step in the road, the ABS may function, causing the exhaust brake to be temporarily released, which may result in a serious accident.**

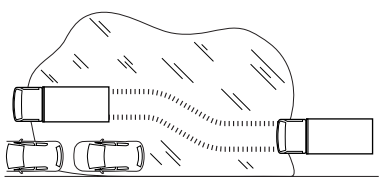
1. Use engine braking and exhaust brake to decelerate sufficiently before applying the brakes.
2. Depressing the brake pedal in two or three stages contributes to stable braking.
   Remember that the braking distance varies with vehicle speed, load weight, and road conditions.

NOTE:
Engine braking is a braking effect realized when the accelerator pedal is released during vehicle operation. The lower the transmission gear, the more powerful the engine braking.

⚠ WARNING

Never operate the vehicle if the brake system is faulty or brake fluid is leaking. Failure to observe this instruction could lead to a serious accident.

Antilock braking system (ABS)



Z16072

If a vehicle is driven on a slippery road or it is running with no or only light load, the wheels can lock and then skid when the brake pedal is strongly depressed. The ABS is a computer-controlled system that deters the wheels from locking by controlling the braking force on each wheel.
The ABS is combined with EBD, which appropriately distributes the braking force according to the weight on each axle and can delay operation of the ABS to the point beyond which all wheels will lock.

⚠ WARNING

- **The ABS is not intended to make it possible to drive in a manner exceeding the vehicle's performance limits. It is your responsibility to take sufficient care to assure safety when driving on a slippery road.**
- **The ABS does not always shorten the braking distance. Do not depend too much on the system, but keep safe following distances.**

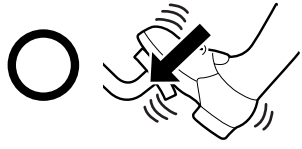
⚠ CAUTION

If you intend to install radio equipment, please contact an authorized dealer beforehand.

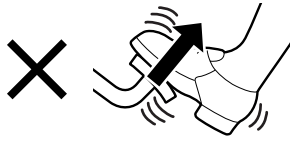
1 Driving tips

NOTE:

- *If the ABS is malfunctioning and the ABS warning lamp stays on, no ABS functions are available. Even if this condition happens, the brakes work normally. If the warning lamp stays on, have the vehicle repaired by an authorized dealer as soon as possible.*
- *EBD stands for "Electronic Brake force Distribution".*
- *To be able to take prompt actions in any situation involving ABS operation, you should know its operational characteristics, which are as follows:*
  - *On an ordinary road surface, the ABS may work even when you do not apply heavy braking.*
    The ABS may work only on the rear wheels at the time of relatively strong braking on a dry road surface if the vehicle is not laden or carrying a light load. This does not indicate an abnormal condition. If the brake pedal is further depressed after ABS works on the rear wheels, the braking force on the front wheels increases, thus shortening the stopping distance.
  - *The ABS works even while the wheels are not locking.*
    The system performs the necessary control by sensing the vehicle speed and the degree of acceleration, in order to prevent complete lockup of the wheels.
  - *While the ABS is in operation, it is not necessary to pump the brake pedal (depressing the pedal two or three times), as the system automatically adjusts the braking forces. If you pump the brake pedal, the braking distance will increase as the pedal must be released during pumping.*



DO: Continue depressing the brake pedal even if it is vibrating.



DON'T: Release the brake pedal.

Z14700

1.1 Brake pedal operation

Hold the brake pedal depressed as necessary even when the ABS is in operation.
When the ABS is working, you may feel very slight or slow vibration through the brake pedal, but this does not indicate an abnormal condition. Continue depressing the brake pedal.
You may also feel slight vibration of the vehicle body or hear the sound of a motor running. These conditions are caused by normal operation of the system, and are not a fault.

1.2 Braking distance

The braking distance varies with the road surface condition. On a gravel road or a road covered with deep, fresh snow, the braking distance may be longer with ABS-equipped vehicles than with vehicles without ABS.

1.3 Steering wheel operation

In the case of hard braking, you may feel the vehicle pulling slightly to the right or left. If this occurs when the wheels on one side are on ice or another slippery surface and the wheels on the other side are not, you may have to correct the direction with the steering wheel.

1.4 Illumination of ABS warning lamp

If the ABS warning lamp comes on while driving, the system is faulty. Although the ABS function is not available under this condition, the brake system operates normally. ⇨ P. 6-35

On uphill and downhill roads

1 Uphill roads

When driving the vehicle using the manual shift mode, downshift early if the vehicle speed begins to drop to minimize the load on the engine.

NOTE:
The vehicle may move backward when starting on an uphill road. Using also the parking brake will help to start successfully in this case.

2 Downhill roads

- If you are going to drive down a steep road or a road with a long downhill grade, test the service brakes and exhaust brake <option> in advance to make sure that they are functioning well.
- Place the vehicle in the gear used when driving uphill and use engine braking and exhaust brake to help slow the vehicle. Never drive downhill at high speeds.
- On slippery roads, avoid sudden engine braking since this could cause a skid.

⚠ WARNING

- **Never coast downhill with the gearshift lever in the "N" position. Doing so makes both engine braking and exhaust brake <option> inoperative, which in turn excessively burdens the service brakes. This also causes the brakes to overheat and the brake pads to wear out prematurely.**
  This can also cause damage to the transmission.
- **Avoid overusing the service brakes as the resultant overheating could cause undesirable vapor lock and fading, both of which contribute to poor braking.**

NOTE:
- *"Vapor lock" refers to the condition in which the brake system overheats, causing the brake fluid to boil and form bubbles that weaken hydraulic pressure, resulting in poor braking.*
- *"Fading" refers to the condition in which the brake pads overheat to the point where friction is significantly reduced. This also results in poor braking.*

⚠ WARNING

Except in an emergency, never apply the parking brake while the vehicle is moving since the vehicle could spin and/or overturn.

- First decelerate the engine sufficiently before downshifting.
  Shifting down will be prohibited by a safety device if the vehicle is driving fast. In such cases, depress the brake pedal and reduce the vehicle speed.

NOTE:
"Overrev" refers to an operating state of the engine in which it rotates at an RPM higher than the recommended maximum RPM. Overrevving the engine could lead to an engine failure.

On rough roads and in bad weather

⚠ WARNING

Use the manual shift mode when driving on slippery surfaces (such as a wet or frozen road). Using the automatic shift mode on slippery roads could cause an accident for the following reasons:
Skidding is more likely to be caused by automatic shift-downs that take place normally when driving in the automatic shift mode. Skidding also may occur easily due to automatic shift-downs following full or quick operation of the accelerator pedal.
Even while driving using the manual shift mode, the vehicle is likely to skid if you suddenly depress the accelerator pedal or quickly shift down the gear.

- Use a low gear and try to drive at a constant speed when driving on gravel roads or muddy roads.
- Do not race the engine when attempting to get the vehicle out of mud, snow, or sand. Racing the engine is useless and even makes the situation worse as the spinning wheels make deeper ruts. Instead, place thick waste cloth or gravel under the tires then move the gearshift lever

between the “D” and “N” positions to rock the vehicle and thereby get it out of the mud, snow, or sand.

⚠ CAUTION

Do not operate more than 5 minutes since it causes the transmission oil or clutch to heat up rapidly.

- Drive very slowly on bumpy roads and take care not to allow the undercarriage to bottom out. When the muffler strikes a rock or other obstacle, its internal catalyst and ceramic filter may be damaged. Have it checked by an authorized dealer.
- Avoid sudden steering and sudden braking on roads which are slippery from rain. Conditions are especially dangerous just after it begins to rain. Use engine braking and the exhaust brake together with the wheel brakes to decelerate. Note, however, that sudden engine braking can cause a skid. Drive at a speed at which you can stay comfortably in control of the vehicle.
- When the vehicle is driven through puddles or washed with water, braking performance can be reduced by water splashed over the brake discs. In this event, drive slowly with light pressure on the brake pedal to dry out the brakes. Pay attention to nearby vehicles while doing so.
- Avoid driving when the road is covered with much water because of torrential rain or other causes. Should your vehicle be soaked by water, have it inspected by an authorized dealer as soon as possible.
  - If water gets into the engine, it can cause engine damage.
  - If water gets into the high-current fuse box, it can cause a short circuit that may result in a fire.
  - If water gets into wheel hub bearings, king pins, tie rod ends, and the components around them, it can cause the bearings and other parts used in them to be rusted and ultimately to seize up.
  - If water gets into the muffler, the catalyst and ceramic filter could be damaged.
- In fog, turn on the fog lamps <option> and drive carefully at low speeds, paying attention to the center line and the vehicle ahead of you.
- When driving in snow or on frozen roads, use tire chains (except FG model vehicles), snow tires or studless snow tires and drive at a moderate speed. Avoid sudden braking and sharp turns.

Parking

⚠ WARNING

- **Park the vehicle on a level, flat surface if possible. Do not park on a slope.**
  If it is unavoidable to park the vehicle on a slope, do the following: Firmly apply the parking brake while fully depressing the brake pedal, place the gearshift lever in the "P" position, and chock the wheels. Turn the steering wheel toward an obstruction (like a curb stone) for increased safety in case the vehicle moves.
- **Do not park the vehicle only with the gearshift lever placed in the "P" position; always firmly engage the parking brake. If you park the vehicle on a steep slope only by placing the gearshift lever in the "P" position without also engaging the parking brake, the gearshift lever will become extremely difficult to move or, in the worst case, it may be impossible to release the transmission from the locked state. If this happens, shift the gearshift lever into the "N" position and then, after making sure the gear position indicator shows "N", move the lever to the "D" position.**
- **Brake faults that would cause the BRAKE warning lamp to illuminate have no effect on the parking brake. If the BRAKE warning lamp illuminates, be sure to apply the parking brake.**
- **The engine and exhaust pipe are extremely hot immediately after the vehicle has been driven. Do not park the vehicle in any place where there is dry grass, waste paper, or other flammable material.**
- **Always stop the engine before sleeping in the cabin. You could otherwise cause an accident by unintentionally moving the accelerator pedal or shift lever while sleeping. Also, you could suffer carbon-monoxide poisoning from exhaust gases if the vehicle is parked in a closed space.**

⚠ WARNING

- **Never leave lighters, cans of carbonated drink, and spectacles in the cabin when parking the vehicle in hot sunshine. The cabin will become extremely hot, so lighters and other flammable items may catch fire and unopened drink cans (including beer cans) may rupture. The heat may also affect plastic spectacle lenses and other spectacle parts that are made of plastic. For example, the coating on the lenses may crack and the lenses themselves may become deformed.**
- **The body as well as inside equipment and controls of a vehicle parked in sunshine for a long time could become hot enough to burn you. Do not touch hot parts directly with bare hands; use a cloth or appropriate material in between.**
- **Always use the mirrors to confirm safety before opening a door. Suddenly opening a door is dangerous because the door may obstruct cars, motorcycles, bicycles, and pedestrians coming from behind.**

1. With the vehicle in a complete stop, pull the parking brake lever while fully depressing the brake pedal, and then place the gearshift lever in the “P” position.
2. After allowing the engine to idle for three minutes, stop it.
3. To help prevent theft and needless consumption of electricity from the battery, be sure to remove the starter key and lock the doors.

NOTE:
A buzzer sounds continuously if the driver’s door or assistant driver’s door is opened while the engine is running and the gearshift lever is in the “D” position. The buzzer stops if the gearshift lever is moved to the “P” or “N” position, the engine is stopped, or the door is closed. If the gearshift lever is moved to the “R” position while the engine is running, the buzzer sounds intermittently. Always stop the engine with the gearshift lever in the “P” position.

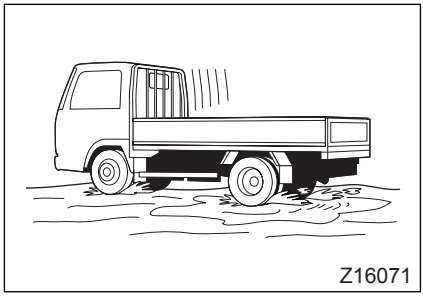
⚠ CAUTION

- **Before stopping the engine, allow it to idle so the coolant temperature comes down. Engine parts are particularly hot immediately after the vehicle has been driven uphill or on an expressway. Let the engine idle for at least three minutes.** ⇨ P. 5-12
- **Leaving the vehicle sitting for a long time with the starter switch in the "ON" or "ACC" position could result in a dead battery.**
- **Be sure to turn off all lights after parking to prevent drainage of the battery.**

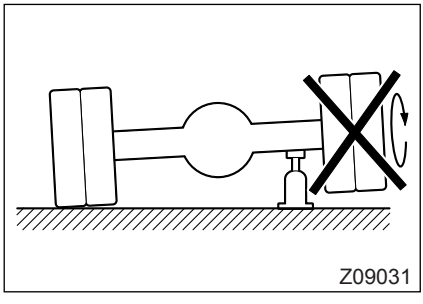
4. If parking on a slope is unavoidable, block the wheels securely with chocks and take any other necessary measures to prevent the vehicle from moving.

Vehicles with limited slip differential OPT

<Standard on FG>


Z16071

The limited slip differential performs a special function in addition to the ordinary differential function which is needed when the vehicle is in a turn. When one wheel begins to spin on a slippery surface, the limited slip differential provides most of the driving force to the wheel which is not spinning, thus automatically stopping the spinning and providing traction to the vehicle.
This function is effective when driving on bumpy or snow laden roads, and useful when moving the vehicle out of mud.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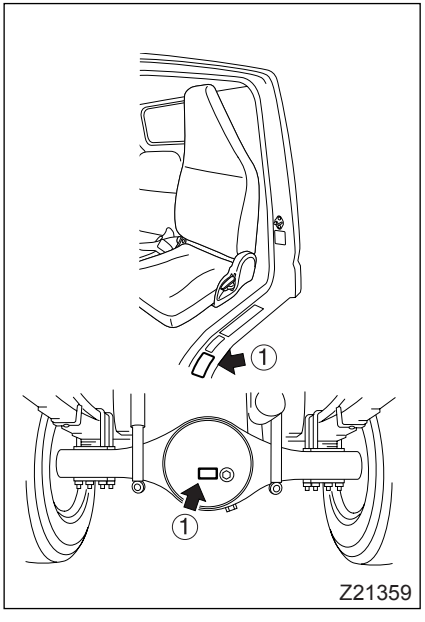
⚠ WARNING

When you raise the vehicle on one side for replacing a tire or any other purpose, never rotate the raised wheel. Doing so is dangerous as power is transmitted to the wheel which is on the ground and the vehicle could move.

⚠ CAUTION

Use only the special oil designed for limited slip differentials if your vehicle is equipped with a limited slip differential.



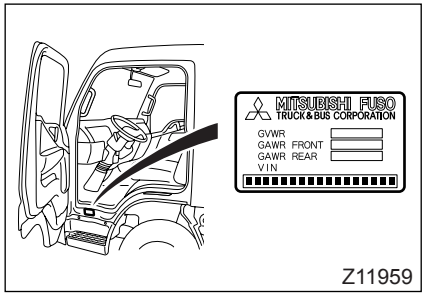
NOTE:
A vehicle with limited slip differential can be identified by precautionary stickers ① near its driver's seat and on the rear axle housing.

The limited slip differential actions take place automatically, but you are recommended to pay attention to the following points:

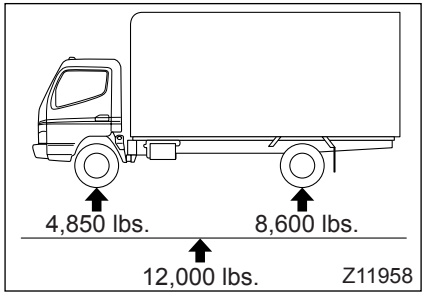
- On slippery road surfaces, excessively depressing the accelerator pedal during a turn may cause the vehicle to skid and lose balance. Keep this in mind for your safety.
- Using tires different in air pressure or outside diameter between the right and left wheels may result in pulling the vehicle to one side during acceleration or uneven wear of tires. Check the tires regularly to make sure the right and left ones are inflated to the same pressure and not different in outside diameter.
- Distribute the load weight evenly. If the load is heavier at the rear, the vehicle's tendency to move in a straight line will slightly increase.

Loading cargo

1 Do not overloading the vehicle.



- Overloading the vehicle causes braking performance to deteriorate and can thus cause an accident. Also, overloading the vehicle places excessive stress on vehicle parts, shortening their service lives. The vehicle is designed to perform best when loaded within its Gross Vehicle Weight Rating (GVWR) and within its front and rear Gross Axle Weight Ratings (GAWR). Try not to exceed these ratings.
- The vehicle's GVWR, front GAWR, and rear GAWR are listed on the VIN plate that is located as shown in the illustration.



NOTE:
Loading to a weight almost equal to a total of the front and rear GAWRs may exceed the GVWR.
For example, a vehicle with a GVWR of 12,000 lbs. (5,445 kg) has a front GAWR of 4,850 lbs. (2,200 kg) and a rear GAWR of 8,600 lbs. (3,900 kg). Added together, the GAWRs total 13,450 lbs. (6,100 kg), thus exceeding the GVWR. Be sure neither the GAWRs nor GVWR are exceeded.

⚠ WARNING

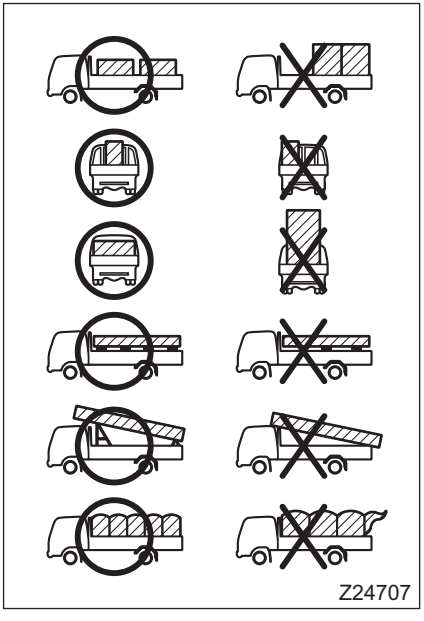
- **Overloading the vehicle can damage the vehicle and make safe driving difficult. For safety, never overload.**
- **The GVWR and GAWRs pertain to the maximum load the vehicle can physically carry. Please also abide by state and regional loading limit requirements.**
- **Do not carry passengers in the cargo area while the vehicle is in motion.**

2 How to load cargo

Improperly loaded cargo is unstable and may cause uneven weight distribution. If the weight is concentrated in one place, it may damage the cargo deck and frame or burst a tire.

⚠ WARNING

- **When roping up cargo or covering it with a tarpaulin, make sure that neither the rope nor the end of the tarpaulin hang down between the cab and the cargo deck as a loosely hanging rope or tarpaulin could catch fire from the engine heat.**
- **When spreading the tarpaulin, take care not to let it cover or be drawn into the engine air intake duct, as this will reduce engine output and could cause an engine failure.**
- **The cargo should be prevented from moving and also securely fixed with wire, etc. so that it will not slide during driving.**
- **Do not place wooden boards or other items between the cargo bed and frame. The heat from the exhaust pipe could set fire to them.**


Z24707

- Place the cargo evenly on deck.
- Avoid being piled high with cargo. If cargo is piled high, the vehicle is at risk of rolling over upon being hit with a side wind or making a turn.
- If you place supports under the cargo, position them at equal intervals.
- Avoid allowing long objects to project over the rear edge of the cargo deck. Use suitable supports when loading long objects. Do not support them only with the gate and the rear edge of the cargo deck.
- To prevent cargo from falling, strap it down securely and cover it with a tarpaulin. Secure the tarpaulin ends neatly so they do not flap.

8. 4WD operation <FG models>

Control and indicator lamps for 4WD operation 8-2
Advice on use of the 4WD mode 8-6
Precautions to be taken when selecting the 4WD mode 8-8

Control and indicator lamps for 4WD operation

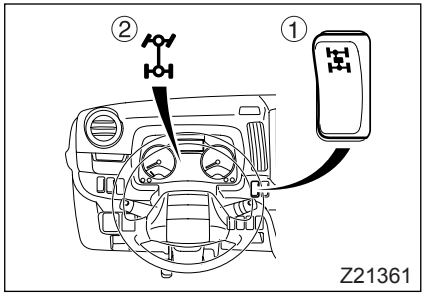
Select the 2WD (rear-wheel-drive) mode or 4WD (all-wheel-drive) mode as necessary for the condition of the road surface. The 4WD mode can be used for extra traction on rough road surfaces and on snow-covered road surfaces (in mountainous regions, for example).

⚠ CAUTION

- **Your 4WD vehicle is intended to be driven on roads. Do not always drive it on rough surfaces. Always driving it on rough surfaces could damage it.**
- **With a 4WD vehicle, power is applied to both the front wheels and rear wheels; if incorrect tires are fitted, they can prevent the vehicle from performing to its full potential and can even cause an accident. Incorrect tires can also adversely affect powertrain components. Please observe the following tire-related cautions:**
  - **Make sure all of the tires are the specified size and are identical in terms of manufacturer, brand, and tread pattern. Be particularly careful when fitting snow tires or other winter-use tires.**
  - **Use tires that do not differ from each other in terms of the extent of wear.**
  - **Regularly check the tire inflation pressures and keep them adjusted to the specified values.**
  - **When tire replacement is necessary, replace all of the tires at the same time.**
  - **Use genuine wheels. Do not change the wheel size.**
  - **To ensure that the tires wear evenly, rotate the tires every 30,000 km (18,000 miles).**

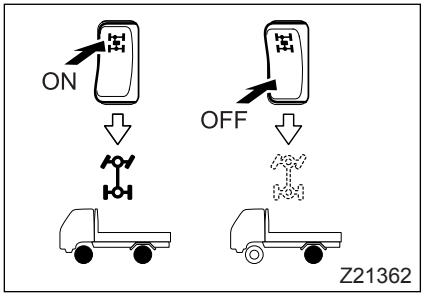
For towing of the vehicle, raise the front wheels off the ground and disconnect the propeller shaft at the end closer to the rear wheels.

The 4WD mode is not recommended for driving on dry paved roads as the tires may wear down prematurely, the running noise may increase, and more fuel may be consumed. Malfunction of the drive train components may also result. Be sure to drive in the 2WD mode on dry paved roads.



1 Location of control and indicator lamps

① Front drive switch
② 4WD indicator lamp



1.1 Front drive switch

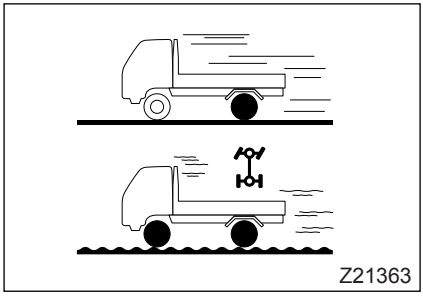
The front drive switch is used to select either the two-wheel drive (2WD) mode that uses only the two rear wheels as driving wheels or the four-wheel drive (4WD) mode in which the engine power is transmitted to all four wheels. Toggle this switch to “ON” to select the 4WD mode; toggle it to “OFF” to select the 2WD mode. The indicator lamp lights up when the 4WD mode is selected.

⚠ CAUTION

Make sure that the free-wheeling hubs on both the front wheels are in the “LOCK” position when the 4WD mode is selected; in the “FREE” position, the engine power is not transmitted to the front wheels. ⇨ P. 8-5

2 Selecting drive mode-transfer gear range combinations

You can select any desired drive mode and transfer gear range combination from among those shown in the following table. Select the most suitable combination according to the driving conditions.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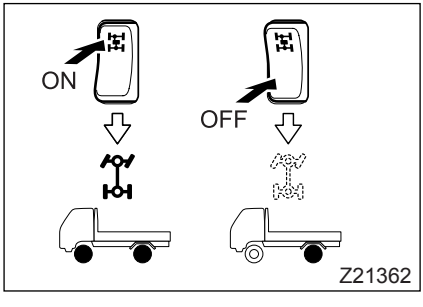
Mode-range combination	Illuminated indicator lamp	Driving conditions
2WD	–	Normal road driving
4WD		Driving on snow-covered, frozen, or sandy roads or other difficult roads where running in the two-wheel drive mode is inappropriate.



Z21362

3 Switching the mode-range combination

- **2WD to/from 4WD**

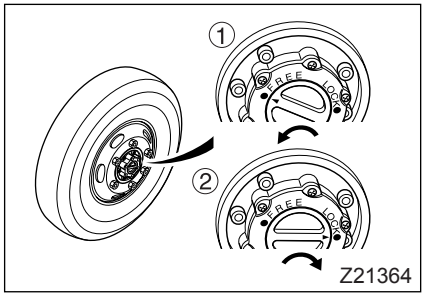
1. Make sure that the free-wheeling hubs on both front wheels are in the “LOCK” position.
⇨ P. 8-5
2. Press the front drive switch either at the “ON” side (4WD) or “OFF” side (2WD) when the vehicle is either in motion or stationary.

NOTE:

- *If it is difficult to switch from 2WD mode to 4WD mode and vice versa, release the accelerator pedal and then depress it again lightly. This will facilitate the switching.*
- *During switching from 4WD mode to 2WD mode, the system may remain in 4WD mode even after the indicator lamp has gone out. If this happens, release the accelerator pedal and depress it again lightly. The switching will then take place.*

4 Free-wheeling hub

- Even when the 4WD vehicle is running in the two-wheel drive mode with the engine power transmitted only to the rear wheels, the front wheels are always connected to the power train (differential, propeller shaft and transfer). The free-wheeling hub is a device to release the wheels from the power train to allow them to rotate freely, thus saving energy and improving power economy.



- Set the free-wheeling hub as follows:
- For propulsion of the vehicle in the 2WD mode, set each free-wheeling hub to the “FREE” position ①.
- For propulsion of the vehicle in the 4WD mode, set each free-wheeling hub to the “LOCK” position ②.

When the 4WD mode is selected, ensure that the free-wheeling hubs on both front wheels are set in the “LOCK” positions. Should either or both of them be in the “FREE” position, four-wheel driving is not possible.

⚠ WARNING

- **Never drive with one free-wheeling hub in the “FREE” position and the other in the “LOCK” position. Doing so is very dangerous.**
- **The free-wheeling hub may be extremely hot after driving. Do not touch it.**

Advice on use of the 4WD mode

When you select the 4WD mode to drive on off-road terrain (sandy or muddy ground) or snow-laden or frozen roads, take sufficient care to avoid inappropriate operation.

1 Driving on snow-covered or frozen roads

Select the 4WD mode if necessary for the snow or road surface conditions. Start out slowly.
Tire chains cannot be used on both front and rear wheels. You are advised to use snow or winter tires.

2 Driving on sandy or muddy ground

- Select the 4WD mode if you find it appropriate to do so after checking sand or mud conditions. Start out slowly. Drive at low speeds, keeping the speed as constant as possible.
- Avoid quick acceleration, sudden braking and sharp turn as they can cause the vehicle to become stuck in the sand or mud, making it impossible to free the vehicle by yourself.
- Muddy conditions are generally difficult to judge and there is danger of becoming stuck in deep mud. To prevent this, drive as slowly as possible and, if necessary, get out of the vehicle and check the conditions.

3 Climbing steep hills

Select the 4WD mode to make full use of engine torque. Choose the path that has the least stones, sand and bumps. At both the start and end of a climb, moderate slopes are preferable.

4 Descending steep hills

- Select 4WD mode and descend slowly using engine braking so that the wheels do not slip.
- Quick braking can slip the wheels and result in a loss of vehicle control. Check road conditions before descending.
- Avoid gear shifting when descending a hill. Select the best gear in advance, and maintain the gear until the end of the descent.

5 Crossing a river

⚠ CAUTION

- **Do not drive in water. Driving in water can cause the following problems:**
  - **Water can get into the rear axle.**
  - **Water can get into the high-current fuses, resulting in a short circuit that causes a fire.**
- **Never shift gears while crossing a river.**

Although 4WD has many advantageous features, it is not designed for driving in water. If it is absolutely necessary to drive in water, select the 4WD mode and drive as described below to get out of water in the shortest possible time.
After driving in water, promptly have the vehicle inspected by an authorized dealer.

- Choose a path where water is shallowest and drive slowly to avoid making waves.
- After crossing, check the brakes. If the brakes do not operate effectively, drive slowly and lightly depress the brake pedal to dry the brakes while remaining aware of any vehicles in front of or behind you.
- After crossing, check the electric system for any problems that the water may have caused. Also observe the recommendations in the following sub-paragraph describing precautions to be taken when selecting the 4WD mode.

Precautions to be taken when selecting the 4WD mode

- In the 4WD mode, you may feel the steering wheel move differently from the way it does in the 2WD mode.
  Operate the steering wheel carefully until you get the complete feel of 4WD operation.

- When turning a sharp corner at a low speed in the 4WD mode, a condition resembling one that would occur during braking can develop. This condition called “sharp corner braking” is caused by the fact that the four tires are moving along circles of different radiuses and is a phenomenon limited to 4WD vehicles. It does not imply any abnormal condition exists. If you experience this condition, either straighten steering wheel or switch to the 2WD mode.

1 If you have driven in water by necessity

- If you have driven in water by necessity, promptly have the vehicle inspected by an authorized dealer.
- Immediately check the engine oil, clutch control fluid (ATF), transmission oil, transfer oil, and differential oil. If the oil looks milky, it is contaminated with water. Be sure to replace it.
  ⇨ P. 7-14
- If water has entered the cab, dry the carpet, etc. Leaving them wet can cause rusting.

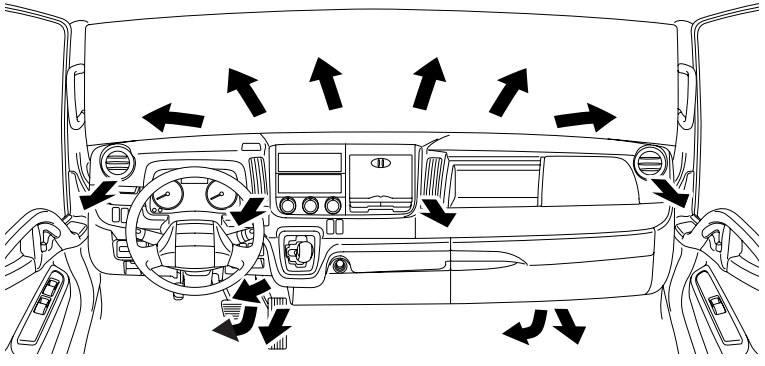
2 After off-road driving, be sure to check the following points:

- Check for damage caused by stones, etc.
- Check the brakes. If the brakes function poorly, have them checked by an authorized dealer.
- Grease the propeller shaft and also the front and rear suspension springs. ⇨ P. 12-19

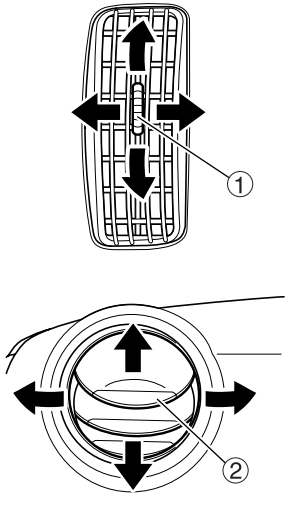
9. Heating and air conditioning

Front air outlets 9-2
Rear air outlets 9-3
Manual air conditioner 9-4
Fully automatic air conditioner 9-10
Rear heater 9-15
Outside air inlets 9-15

Front air outlets



Z21365



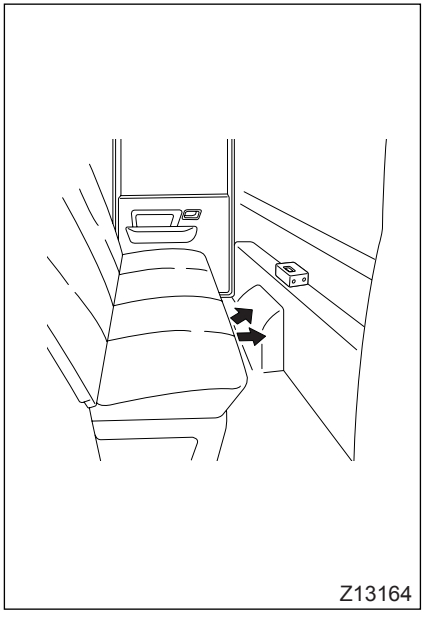
Z21366

1 Adjusting the airflow direction

- Adjust the up/down direction of airflow from each outlet as desired by moving up or down the knob ① or fin ②.
- Adjust the left/right direction of airflow from each outlet as desired by pressing the right or left side of the outlet.
- Close each outlet by moving the knob or fin fully downward. The outlet opens if the knob or fin is moved upward.

NOTE:
Avoid placing anything between the windshield and instrument panel, as it will block the necessary airflow toward the windshield.

Rear air outlets OPT



Air outlets in vehicle equipped with rear heater

Manual air conditioner

⚠ WARNING

Never leave children alone in the cab especially when the air-conditioning is on. They will suffer from dangerously high interior temperatures should the air conditioning accidentally stop.

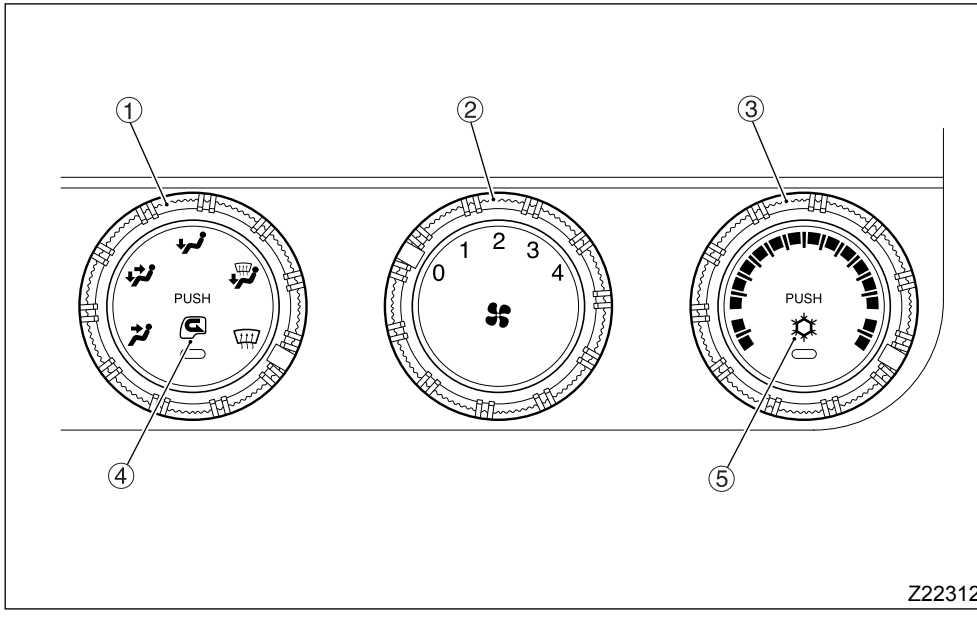
⚠ CAUTION

To protect the environment, your vehicle's air conditioning system uses refrigerant HFC-134a which does not harm the ozone layer.
Since charging the system with this refrigerant requires a method different from the conventional method, be sure to contact your nearest authorized dealer if your system needs to be serviced.

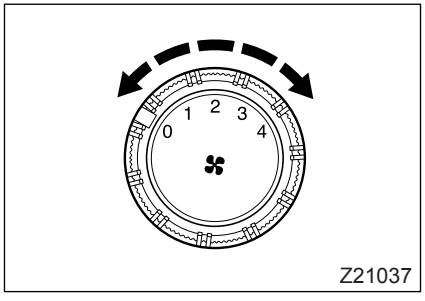
NOTE:

- *The heater uses heat produced by the engine coolant. Warm air is, therefore, not available until the coolant temperature becomes sufficiently high.*
- *When you perform the parked DPF regeneration, the engine compartment temperature will rise, probably causing the air conditioning system to stop. You may then feel reduced air conditioning performance, but this does not indicate any abnormality. The air conditioning system will automatically restart functioning normally as soon as the engine compartment temperature drops to a normal temperature following the termination of the DPF regeneration.*
- *In some vehicles, a fast idling device increases the engine's idling speed slightly when the air conditioner is used.*
- *Do not release refrigerant into the atmosphere. When necessary because of servicing or scrapping of the vehicle, consult the nearest authorized dealer in order to have the refrigerant properly removed.*

1 Control panel



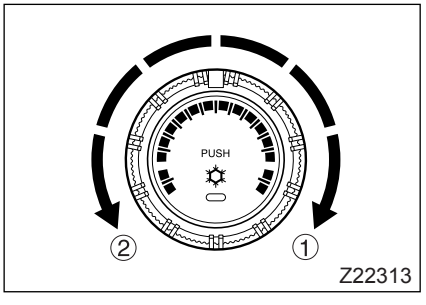
① Mode selector dial
② Fan speed dial
③ Temperature adjustment dial
④ Air selector switch
⑤ Air conditioner switch



1.1 Fan speed dial

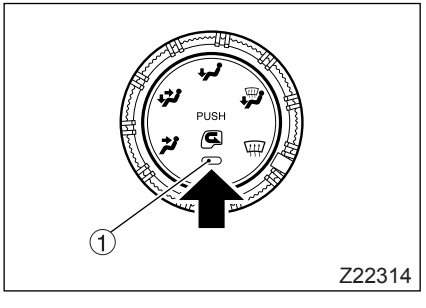
Fan speed dial allows you to select 4 fan speeds. Select the desired speed.

0: Turned off
1: Breeze
2: Weak
3: Medium
4: Strong



1.2 Temperature adjustment dial

Turn the dial in the direction of arrow ① to increase the air temperature and in the direction of arrow ② to reduce it.



1.3 Air selector switch

Pressing the air selector switch allows you to toggle the setting between recirculation of inside air and introduction of outside air. When recirculation is selected, the indicator lamp ① in the switch comes on.

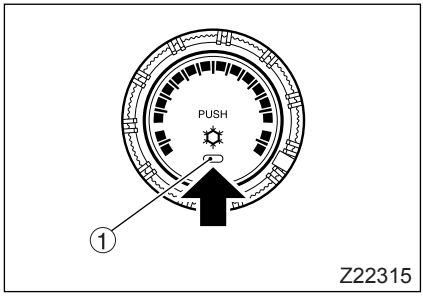
- Outside air
  Use this setting when driving in normal conditions.
- Recirculation
  Use this setting when the outside air is dirty. Using this setting when parking enables you to prevent dust from entering the cab.

⚠ CAUTION

Using the recirculation setting for a long time will cause air to become stale. If this happens, switch to the outside air setting.

NOTE:

- *Select outside air when driving in normal conditions.*
- *Using the recirculation setting for a long period when humidity is high makes the windows prone to fogging.*
- *If the air selector switch is pressed with the starter switch at "OFF", the setting will not change until the starter switch is turned to "ON".*

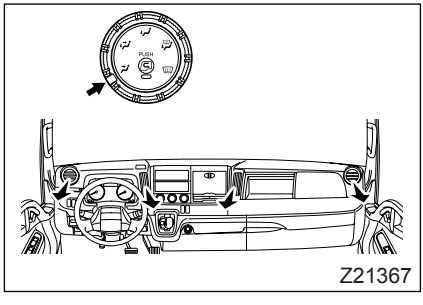


1.4 Air conditioner switch

Pressing the air conditioner switch activates the air conditioner, which has cooling and dehumidifying functions. The indicator lamp ① in the switch comes on at this time. Pressing the air conditioner switch once more stops the air conditioner.

NOTE:

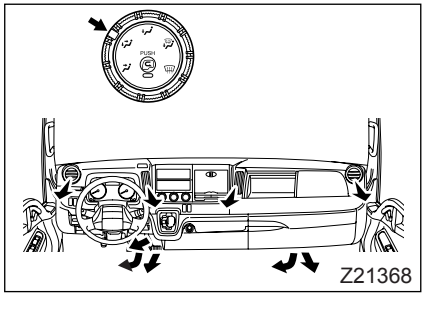
- *If the air conditioner switch is pressed with the starter switch at "OFF", the air conditioner will not start until the starter switch is turned to "ON".*
- *If the air conditioner switch is pressed when the fan speed dial is turned to the "OFF" position, the air conditioner will not start until the fan speed dial is turned to an operating position.*



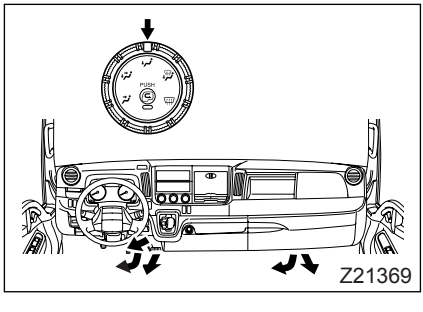
1.5 Mode selector dial

Use the mode selector dial to select outlets as desired.

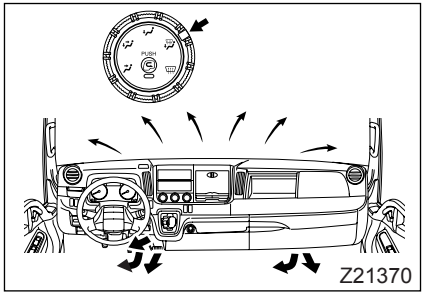
- For airflow toward the upper body
  Place the mode selector dial in the position.



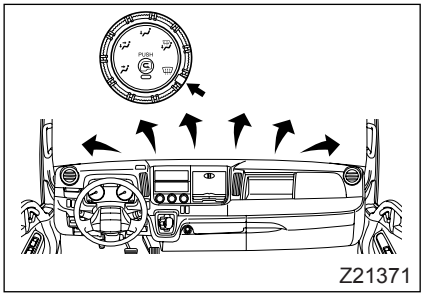
- For airflow toward the upper body and toward the feet
  Place the mode selector dial in the position.



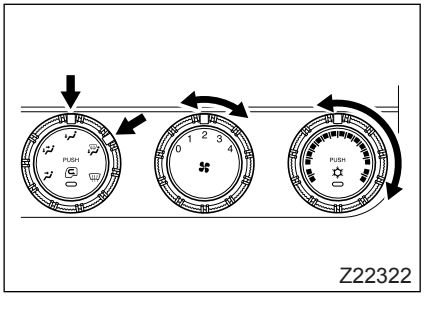
- For airflow toward the feet
  Place the mode selector dial in the position.



- For airflow toward the feet and toward the windshield
  Place the mode selector dial in the position.



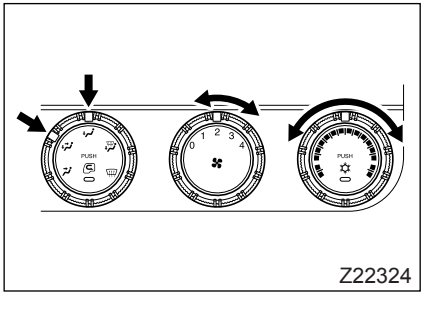
- For airflow toward the windshield
  Place the mode selector dial in the position.



2 Using the controls

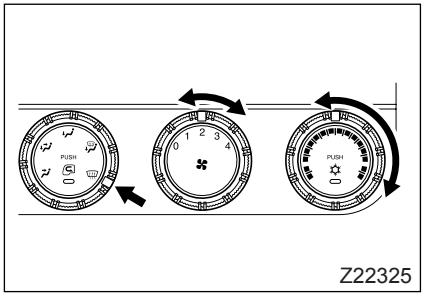
2.1 To heat the cab

Place the mode selector dial in the position or in the position.



2.2 For cool airflow toward the head and warm airflow toward the feet

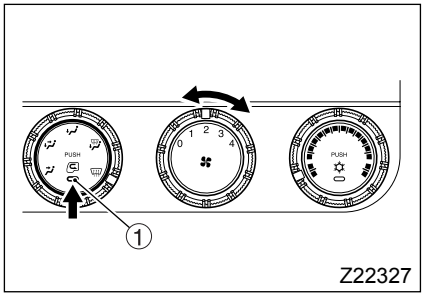
Place the mode selector dial in the position or in the position.



Z22325

2.3 To defog the windshield

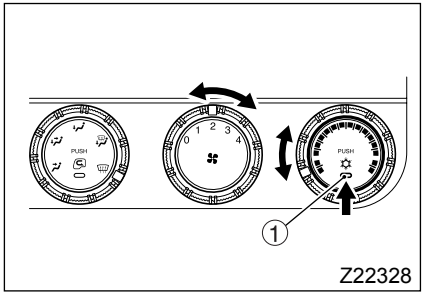
Place the mode selector dial in the position. If you wish to defog the windshield quickly, use the fan speed dial to select the maximum fan speed and use the temperature adjustment dial to select the maximum temperature.



Z22327

2.4 To ventilate the cab

Press the air selector switch to select outside air, and place the mode selector dial in the position. When the mode switches to air recirculation, the indicator lamp ① in the switch goes out.



Z22328

2.5 To cool the cab

Press the air conditioner switch to activate the air conditioner, then use the temperature control dial to set a comfortable temperature. The indicator lamp ① will be illuminated while the air conditioner is operating.

3 Cleaning the air filter

Clean the air filter every 6 months.
A dust clogged air filter may cause a poor air conditioning performance and blower motor malfunction.

⇨ P. 12-87

Fully automatic air conditioner

⚠ WARNING

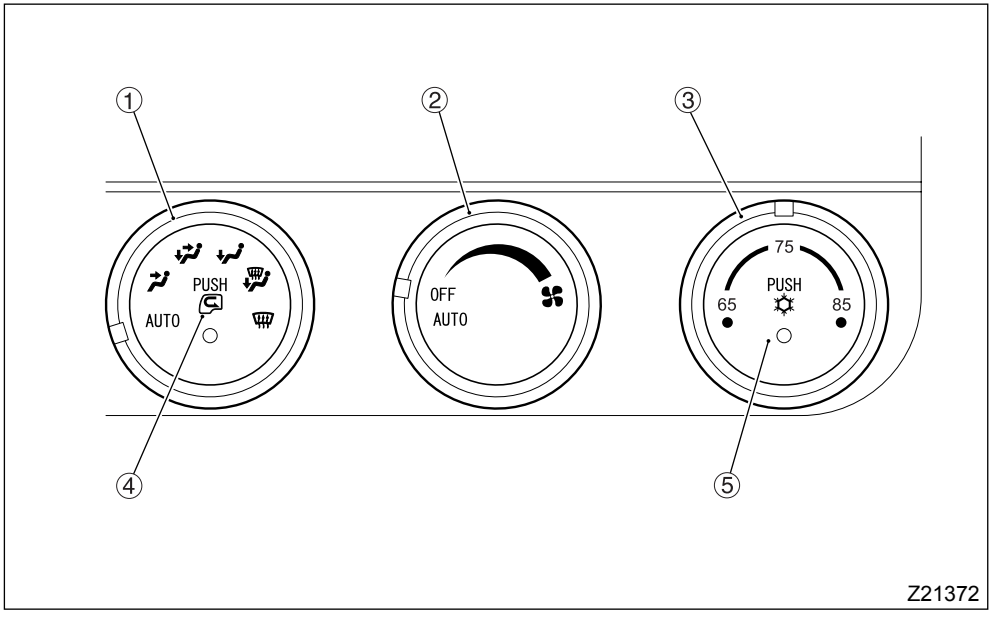
Never leave children alone in the vehicle. If the air conditioner stops for some reason or other, the temperature inside the vehicle will rise, and can cause heat stroke, for example.

⚠ CAUTION

To protect the environment, your vehicle's air conditioning system uses refrigerant HFC-134a which does not harm the ozone layer.
Since charging the system with this refrigerant requires a method different from the conventional method, be sure to contact your nearest authorized dealer if your system needs to be serviced.

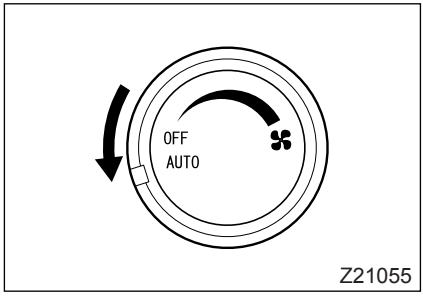
NOTE:

- *Coolant from the engine is used in the heating unit. If the level of coolant is low, the unit will be unable to generate warm air when required.*
- *Do not release refrigerant into the atmosphere. When necessary because of servicing or scrapping of the vehicle, consult the nearest authorized dealer in order to have the refrigerant properly removed.*

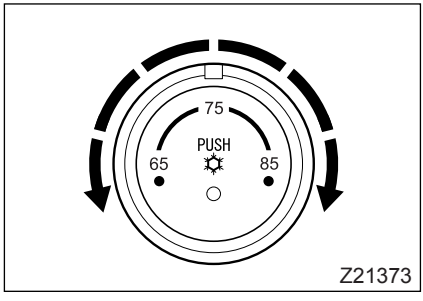


① Air outlet selector dial
② Air volume adjustment dial
③ Temperature adjustment dial
④ Air selector switch
⑤ Air conditioner switch

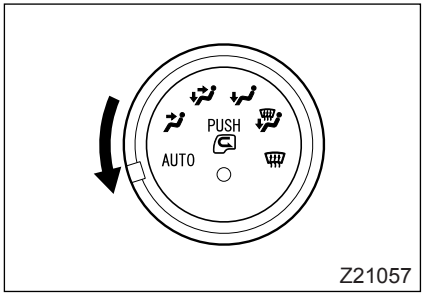
1 Using the air conditioner automatically



1. Set the air volume adjustment dial to “AUTO”.

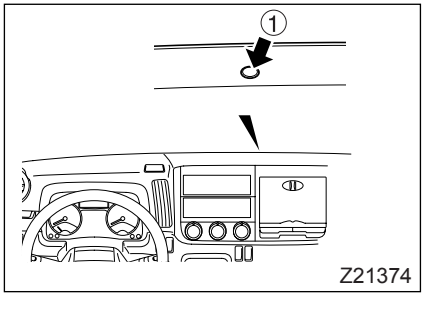


2. Set the desired temperature using the temperature adjustment dial.
   You can adjust the set temperature to a value between 65°F and 85°F (18°C and 29°C).



3. Set the air outlet selector dial to “AUTO”.
   The air outlet (excluding and), air volume, “ON” or “OFF” status of the air conditioner, and air selector are adjusted automatically.

4. To stop operation, set the air volume adjustment dial to OFF.

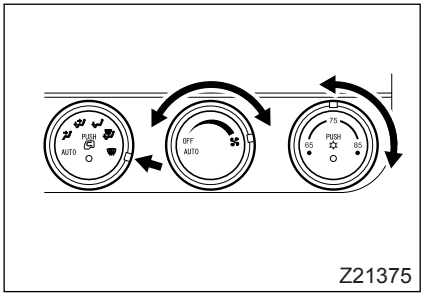


NOTE:

- *Do not place objects on the solar radiation sensor ① or cover it because this will prevent the air conditioning operation from taking account of solar radiation.*
- *During “AUTO” operation, if you operate the air volume adjustment dial, the air outlet selector dial, or the air selector switch, the operated function will take priority. Functions other than the operated one will be controlled automatically.*
- *The automatic control of the air selector does not work when the air conditioner is turned off.*

2 Using the air conditioner manually

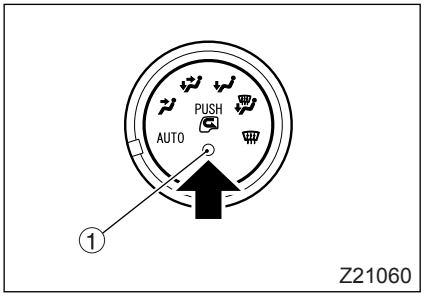
- Operate each dial as desired.
  Even during automatic (AUTO) operation, the operated function will take priority.
- Functions other than the operated one will be controlled automatically.
- To stop operation, set the air volume adjustment dial to OFF.



Z21375

2.1 Defrosting the windshield

- When you turn the air outlet selector dial to ⛆, the air conditioner operates automatically and the air selector is switched to draw in outside air.
- To quickly defrost the windshield, set the air volume adjustment dial to maximum, and then set the temperature to maximum using the temperature adjustment dial.



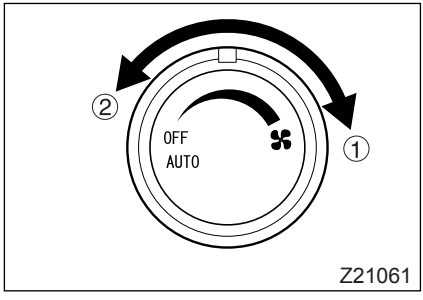
Z21060

2.2 Preventing contaminated air from entering the vehicle

- Press the air selector switch so as to select air recirculation.
- When the mode switches to air recirculation, the indicator lamp ① in the switch lights.
- Each time you press the switch, the mode switches between outside air ventilation and air recirculation.

NOTE:

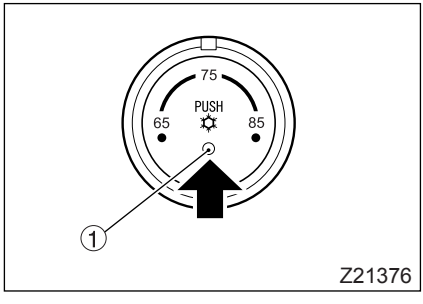
- *When the air outlet selector dial and the air volume adjustment dial are in the "AUTO" position, and the air selector switch is operated, the air selector function switches to manual.*
- *To put the air selector function in "AUTO", turn the air outlet selector dial or the air volume adjustment dial to a position other than "AUTO", then turn it to "AUTO" once again.*
- *Normally, use the outside air ventilation mode.*
- *When the humidity is high, if you use the air conditioner in the air recirculation mode for a long period, condensation is likely to occur on the windshield.*



2.3 Changing the air volume

To increase the air volume, turn the air volume adjustment dial to the right, and to reduce the air volume, turn the dial to the left.

①: Strong
②: Weak

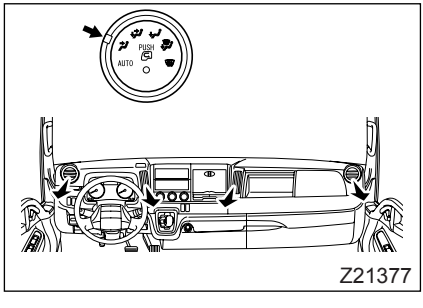


2.4 Dehumidifying and air conditioning

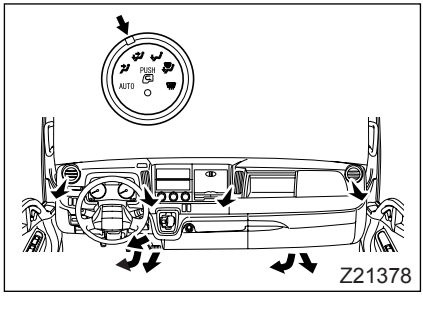
Pressing the air conditioner switch activates the air conditioner, which has cooling and dehumidifying functions. The indicator lamp ① in the switch comes on at this time. Pressing the air conditioner switch once more stops the air conditioner.

2.5 Changing over the selected air outlet

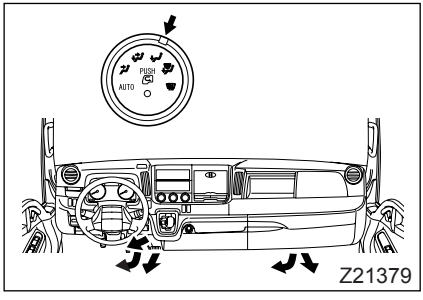
Each time you turn the air outlet selector dial, the selected air outlet changes over.



- Blowing air toward your upper body

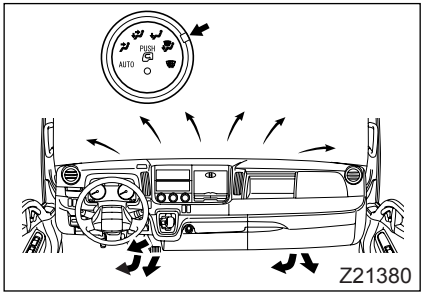


- Blowing air toward your upper body and feet



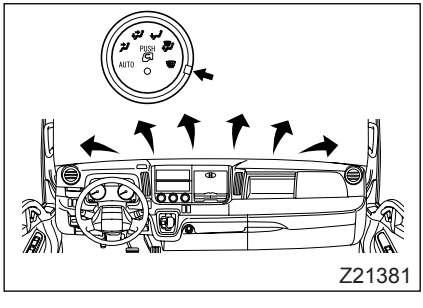
Z21379

- Blowing air toward your feet



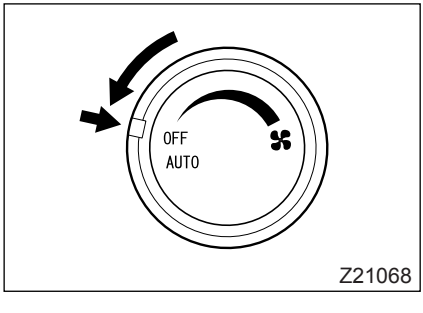
Z21380

- Blowing air toward your feet and the windshield



Z21381

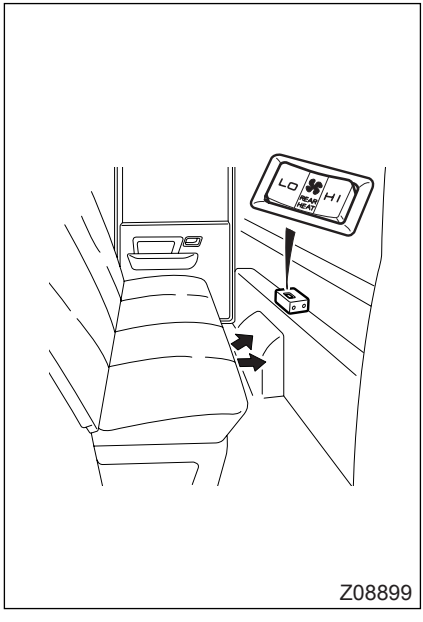
- Blowing air toward the windshield



Z21068

2.6 Stopping all operations

Set the air volume adjustment dial to OFF.

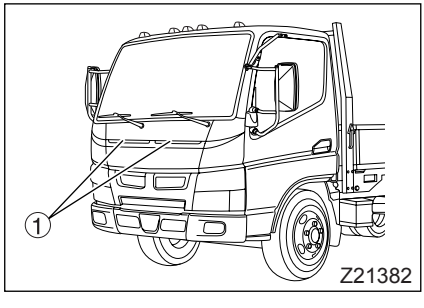


Z08899

Rear heater OPT

<Crew-cab vehicle>
The rear heater blows warm air from below the rear seat. Select the desired blower speed by pressing the LO or HI side of the rear heater switch. When operation of the rear heater is not required, keep the switch in its middle position (with neither the LO nor HI side pressed).

NOTE:
The heater uses the heat produced by the engine coolant. Warm air is, therefore, not available until the coolant temperature becomes sufficiently high.



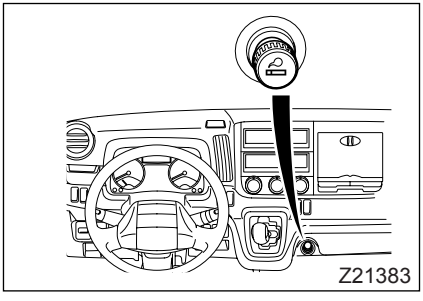
Z21382

Outside air inlets

- Make sure the outside air inlets ① are not covered or otherwise obstructed. Remove any object that is covering or otherwise obstructing them. Unless the inlets are unobstructed, air will not flow smoothly from the outlets when outside air is selected.
- Do not directly apply steam from a cleaner to the outside air inlets. Water could enter the cab, and the wiper motor could malfunction.

10. Interior equipment and accessories

Cigarette lighter 10-2
Ashtrays 10-3
Coat hooks 10-4
Sun visors 10-4
Interior lamp 10-5
Step lamp 10-6
Small article compartments 10-7
Using the radio 10-11
AM/FM radio and CD player 10-11
Accessories 10-34


Z21383

Cigarette lighter

The cigarette lighter can be used when the starter switch is in the “ON” or “ACC” position.
Push the cigarette lighter all the way in. It will soon pop back to the original position with its core red hot. Pull out and use.

⚠ WARNING

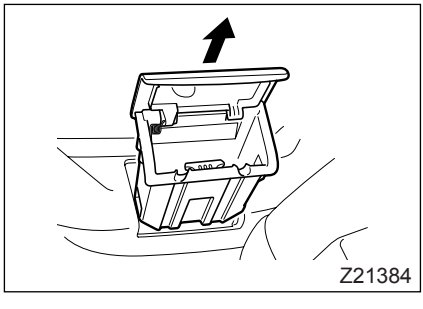
- **Do not hold the cigarette lighter in the pushed-in position since the wiring could burn out and start a fire.**
- **Something is wrong with the lighter if it does not pop out within approx. 30 seconds. If this should happen, pull it out manually and have the lighter inspected by an authorized dealer. Leaving the lighter unremoved in the socket could cause a fire.**
- **Do not leave your vehicle with the cigarette lighter pushed in. Doing so could result in a fire.**
- **Do not allow a child to touch the cigarette lighter. The child could get burned.**
- **Do not touch the metallic parts of the cigarette lighter. You could get burned.**
- **Never use a cigarette lighter from another vehicle. Your vehicle’s cigarette lighter is designed for a 12 V power supply. Do not use a 24 V cigarette lighter.**
- **You must replace a deformed cigarette lighter with a genuine replacement lighter or its equivalent. A deformed lighter will not pop out properly and could cause a fire.**
- **Do not use electric devices designed to be plugged into the cigarette lighter socket, as this could overload the circuitry and overheat the wiring, possibly causing a fire. This could also damage the inside of the cigarette lighter socket.**
- **If water gets into the cigarette lighter socket, it could cause a short circuit, resulting in a fire. Have the cigarette lighter socket cleaned by an authorized dealer.**

Ashtrays

Remove and empty the ashtrays when they become full.

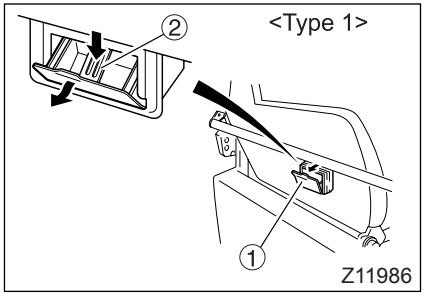
⚠ WARNING

- **Be sure to put out cigarettes and matchsticks before putting them in the ashtrays. Close ashtrays completely. Leaving an ashtray open could cause a fire, as the heat from cigarettes or matchsticks may ignite things in the ashtray.**
- **Put only cigarette stubs and matchsticks in the ashtray. Empty the ashtray before it becomes full completely as too many stubs crammed into the ashtray could catch fire.**
- **Do not throw cigarette ends out of the windows since this is environmentally irresponsible and could start a fire.**
- **When cleaning the ashtray, do not strike it with a hard object since it could break. If the ashtray breaks, stop using it and replace it with a new one. Using a broken ashtray could cause a fire.**



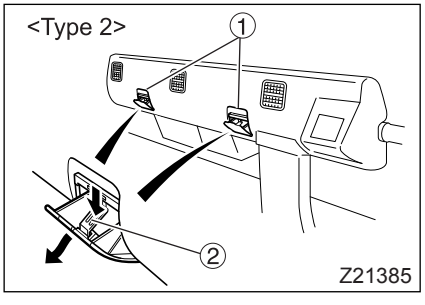
1 Driver's door ashtray and assistant driver's door ashtray

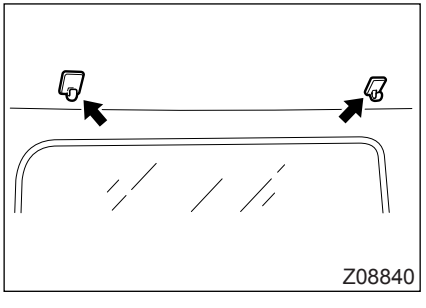
- Raise the lid to use the ashtray.
- When you wish to empty the ashtray, hold the lid and pull the entire ashtray upward to remove it.



2 Rear ashtray in crew-cab model

- Pull the lid of the ashtray ① toward you for use.
- When you wish to empty the ashtray, push down the spring ② and pull the ashtray out toward you.
- To refit the ashtray, insert its bottom into the groove then hold down the spring ② and push the ashtray into place.



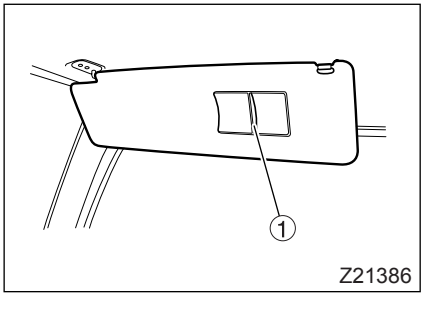


Coat hooks

<Vehicles other than Crew-cab models>
Use the coat hooks if you wish to hang up clothing or similar items.

⚠ CAUTION

Do not pull the coat hooks with excessive force or hang heavy items on them. They could break.



Sun visors

The sun visor screens your eyes from sunlight. Change its angle as needed. Unhook the inside edge of the sun visor and swing it sideways to reduce glare from the side. There is a ticket holder ① on the back of the driver's sun visor.

Interior lamp

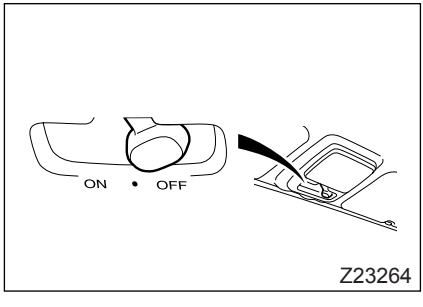
The interior lamp(s) can be used with the starter switch in any position.

⚠ WARNING

Do not leave the interior lamp or spot lamps lit while driving. Otherwise, the light reflected by interior surfaces will form images on the windshield which will disturb your forward vision, increasing the risk of an accident.

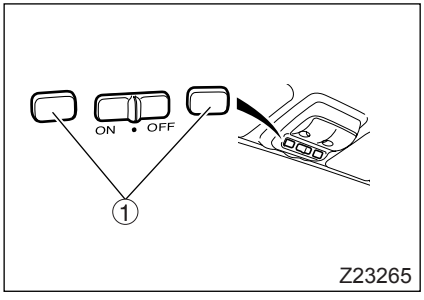
⚠ CAUTION

Leaving an interior lamp illuminated for a long time with the engine not running can drain the battery to such an extent that the engine cannot be started. Always turn off the lamps before you leave the vehicle.



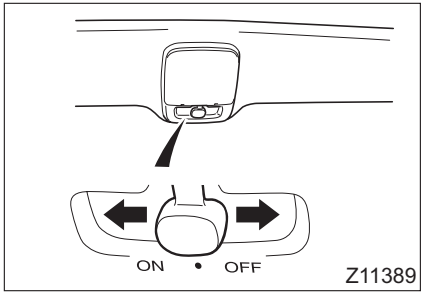
1 Interior lamp

- **"ON" position**
  The lamp is illuminated regardless of the door positions.
- **"•" position**
  The lamp comes on when a door is opened and goes off when the door is closed.
  If the engine is stopped, the lamp will gradually dim and go out 10 seconds after closing the door.
- **"OFF" position**
  The lamp is off regardless of the door positions.



2 Interior lamp with built-in spot lamps <Option>

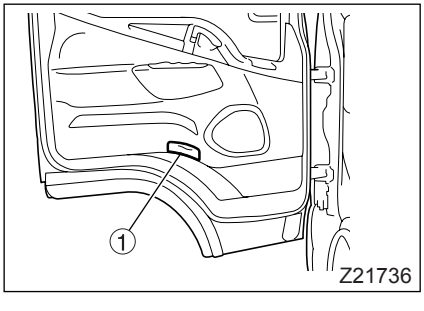
- **"ON" position**
  The interior lamp is illuminated regardless of the door positions.
- **"•" position**
  The interior lamp comes on when a door is opened and goes off when the door is closed.
  If the engine is stopped, the lamp will gradually dim and go out 10 seconds after closing the door.
- **"OFF" position**
  The interior lamp is off regardless of the door positions.
  Spot lamp switches ①
  If one of these switches is pressed, the spot lamp on the side of the pressed switch comes on. The lamp goes out when the switch is pressed again.



3 Rear interior lamp – Crew-cab models

- **"ON" position**
  The lamp is illuminated regardless of the door positions.
- **"•" position**
  The lamp comes on when a door is opened and goes off when the door is closed.
  If the engine is stopped, the lamp will gradually dim and go out 10 seconds after closing the door.
- **"OFF" position**
  The lamp is off regardless of the door positions.

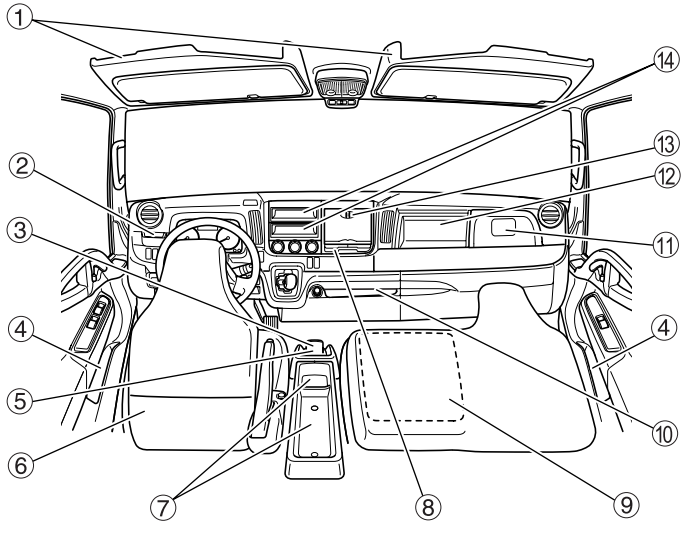
Step lamp



- When a door is opened, the step lamp ① on the door comes on. The lamp goes out when the door is closed.
- The step lamp goes out about 5 minutes after opening the door under either of the following conditions:
  - The starter key is removed or in the "LOCK" position.
  - The brake pedal is not depressed.

NOTE:
The step lamp does not go out while the hazard warning lamps are flashing.

Small article compartments



⚠ WARNING

Always close the glove compartment before operating the vehicle.
If left open, their covers could cause injury in the event of a collision or sudden stop.

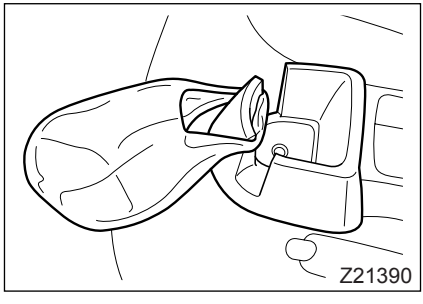
⚠ CAUTION

- **Fuses, relays, and other electrical items are located below the glove compartment ⑪ and the tray ⑫. Do not splash water on the tray, and do not put wet objects in it.**
- **Do not use the console and tray to hold items that are prone to rolling while the vehicle is moving. Such items could create a hazard by impeding driving.**

① **Overhead shelf**

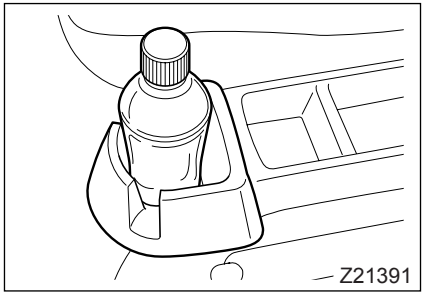
⚠ WARNING
Do not use the overhead shelf to hold items that are heavy and/or prone to rolling. Such items could fall down and cause injuries as the vehicle starts and stops moving.

② **Vertical compartment**



③ **Hook**
<Vehicles other than Crew-cab models>

④ **Door pocket**

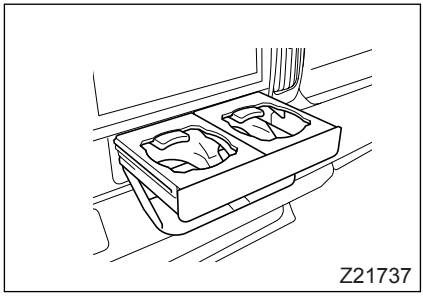


⑤ **Center tray**
<Vehicles other than Crew-cab models>

⑥ **Seatback pocket**

NOTE:
Avoid putting bulky items in the seatback pocket or pulling hard on the pocket. Doing so could break the seat covering.

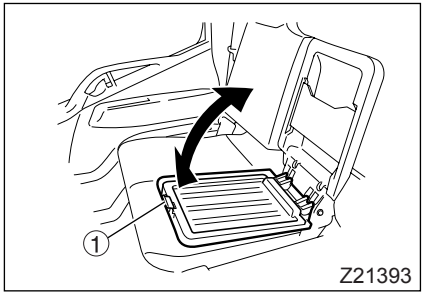
⑦ **Center console box**


Z21737

⑧ **Cup holder**
Pull out the cup holders to use them. Keep them pushed in when they are not being used.

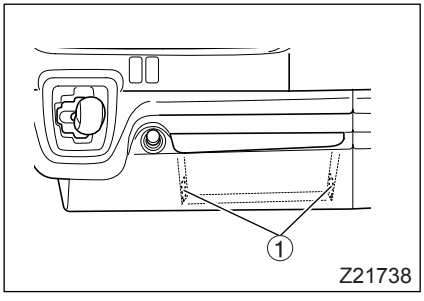
⚠ WARNING

- **The contents in a cup or can held in the cup holder may spill during movement of the vehicle. Be careful of scalding if they contain hot beverages.**
- **Do not spill any water or drink over the switches and electrical equipment around the driver's seat, as wet electrical devices could malfunction and even cause a fire. If you spill a drink or water over electrical devices, have your vehicle inspected by your nearest authorized dealer.**



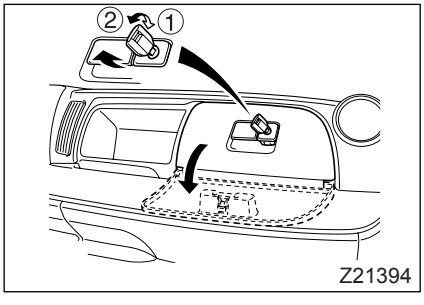
Z21393

⑨ **Center tray with magazine rack**
<Vehicles with a center tray with magazine rack>
Pull the lever ① on the center seat to fold the seatback. You will then be able to use the center tray and magazine rack.



⑩ **Lower pocket**

NOTE:
If you accidentally drop something like a pen into the lower pocket, take it out through one of the holes ① that open at both sides of the pocket's inside bottom using a long, thin rod or similar object.



⑪ **Key-locked glove compartment**
① Lock
② Unlock

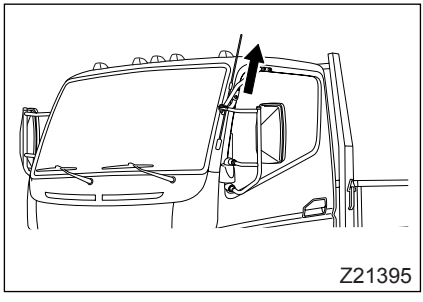
⑫ **Tray**
⑬ **Box with lid (2DIN)**
⑭ **Pocket**
The pocket may be used as a radio or other audio equipment mounting space.

Using the radio

The radio (optional) can be used with the starter switch in the “ON” position or “ACC” position.

⚠ CAUTION

Using the radio for an extended period without the engine running could drain the battery.


Z21395

- Extend the antenna before using the radio. Retract the antenna when it is likely to cause an obstruction, for example, when tilting the cab.

AM/FM radio and CD player OPT

The radio and CD player can be used while the starter switch is in the “ON” or “ACC” position.

1 Before using the AM/FM radio and CD player

⚠ WARNING

- **Operate the controls of the audio system only when the vehicle is stopped. Operating them while driving could lead to an accident.**
- **Adjust the speaker volume to a level that allows you to hear sounds outside the vehicle. If the speaker volume is too high, you may be unable to hear warning sounds and an accident could result.**

⚠ CAUTION

- **Do not put coins or any other objects in the disc slot of the CD player.**
- **Press the buttons gently; pressing them roughly could cause system malfunctions. Also, avoid touching the display screen (LCD).**
- **In the event of a trouble with the system (such as foreign objects slipping inside the system, water splashing onto the system, smoke or strange smell from the system, etc.), stop using the system and have it inspected by an authorized dealer. Do not attempt to repair the system yourself or to continue using it.**

NOTE:

- *After parking for a long time in direct sunlight, the CD player may not work normally if its internal parts have become too hot. In this case, wait until the CD player cools down before using it.*
- *Just after turning on the heater or when the cab is very humid, condensation may form inside the audio system and cause the CD player to malfunction. If this happens, remove the CD and leave the player as it is with the power turned on for several minutes to let the condensation evaporate.*
- *This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:*
  (1) This device may not cause harmful interference, and
  (2) this device must accept any interference received, including interference that may cause undesired operation.

1.1 Tips on using CDs

- Specially shaped CDs, such as square or octagonal CDs, cannot be played using this player. Only use round CDs.
- Store CDs in their cases. Do not expose them to direct sunlight, and do not keep them in a humid or hot place.
- Fingerprints on the shiny side (non-label side) of the CD can impair sound reproduction. Always hold the CD between your two fingers, one in the center hole and the other on the outer edge.

- Use a soft cloth to remove dirt from the disc. Wipe it in straight lines from the center toward the outer edge. Never use thinner or antistatic fluid to clean a CD.
- Do not use cracked or evidently warped CDs. Also avoid using CDs with a printable label surface. Using these CDs may cause the player to malfunction.
- Do not mark the CD with a ballpoint pen or the like. Also do not stick paper or a label on its surface.
- New CDs may have rough inner and/or outer edges (formed by excess material during production). CDs with rough edges may not be inserted into the player or may cause the reproduced sound to skip. If you find any roughness on the edges of a new CD, remove it using a ballpoint pen or other appropriate object before inserting it into the player.

1.2 Discs and files

The audio system on your vehicle can play both music CDs (CD-R, CD-RW and CD-ROM) and MP3/WMA file CDs (CD-R and CD-RW).

- **Discs**

If the disc is a CD-R or CD-RW, the player cannot play it if the recording technology used to write data to the disc and its physical format are inappropriate for the system.

The following discs cannot be played by this system:

- Warped, damaged or contaminated discs
- Discs with broken data
- Discs with data recorded by packet writing
- Discs not finalized

NOTE:

- *Packet writing is one of the technologies used for recording data on CD-R/CD-RW.*
- *Finalization involves writing data which indicates that the medium (such as CD-R/CD-RW) will not accept any more data written to it, in order to make it compatible with reproduction systems. For details on finalization, please refer to the instruction manual of your CD-R/CD-RW writing software or CD-R/CD-RW recorder.*

- **MP3/WMA files**
- MP3 (MPEG1/2 Audio Layer III) is a standard coding format for digital audio data compression.
- WMA (Windows Media® Audio) is the coding format for digital audio data compression developed by Microsoft Corporation.

NOTE:
- *Windows is a registered trademark of Microsoft Corporation in the United States and other countries.*
- *Windows Media is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.*

- **File specifications**

Bit rate	MPA: 8 – 320 kbps
	WMA: 64 – 161 kbps
Sampling frequency	MPEG-1 LAYER2/3: 32, 48, 44.1 (kHz)
	MPEG-2 LAYER2/3: 16, 22.05, 24 (kHz)
	MPEG-2.5 LAYER3: 8, 141.025, 12 (kHz)
Format	ISO/IEC 11172-3.13818-3
Maximum number of layers of directory	8
Maximum number of folders	200
Maximum number of files	512

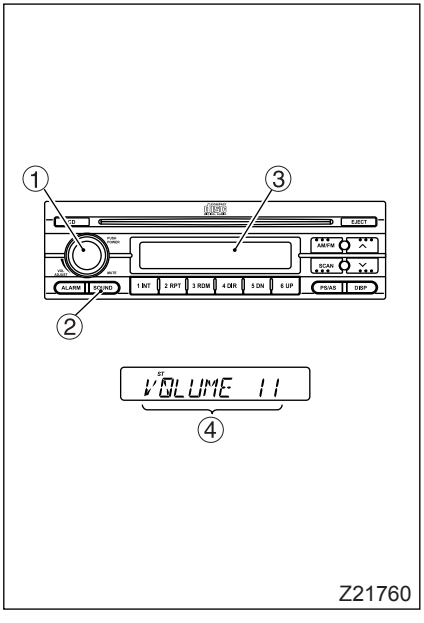
- This audio system recognizes files as MP3/WMA files and reproduces them only if their file names have the extension ".mp3" or ".wma" representing MP3 or WMA.
- The system supports VBR (variable bit rate) encoded audio files.
- The system supports multi-session files. However, it will not reproduce any session that is not closed.

NOTE:
- *Bit rate is the amount of data (number of bits) processed per second. Variable bit rate (VBR) is a method in which the bit rate is varied during the data encoding process.*
- *Sampling frequency refers to the number of times that analog signals are converted into digital signals (AD conversion) in one second.*
- *Multisession is a writing format applicable to recordable CDs (such as CD-R). Closing means the process to record a session closing statement at the end of writing.*

- The system cannot reproduce the following files:
  - MP3i and MP3PRO format files
  - MP3 files in an inappropriate format
  - Layer 1/Layer 2 format files
  - When reproducing WMP 10/WMP 9 encoded WMA files, those parts with functional expansion from WMA 8 (i.e., Pro, Lossless and Voice) are not supported.
  - WMA files with validated digital rights management (DRM)
  - Other audio files such as WAVE
- If a CD concurrently contains music CD (CD-DA) data and MP3/WMA files, only the data that is first detected is reproduced. If such a CD is played, abnormal reproduction may result, including no sound.
- When a VBR encoded file is played back, the system may not display the correct playing time. The difference between the actual and displayed playing times may increase after fast-forward or fast-reverse operation.

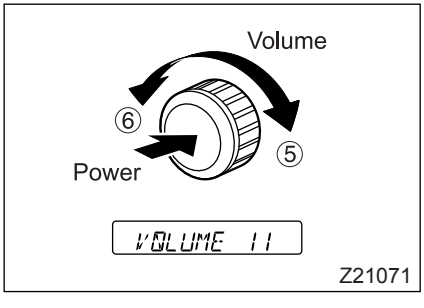
NOTE:

- *MP3i and MP3PRO are data compression formats derived from MP3.*
- *WAVE is the standard audio file format of Windows.*
- *ID3 tag/WMA tag*
  - *You can write additional character data, called ID3 tags, to MP3 files in order to record track titles, artists' names, etc. The system supports ID3 tags of Versions 1.0, 1.1, 2.2, 2.3 and 2.4.*
  - *As with MP3 files, you can write additional character data, called WMA tags, to WMA files in order to record track titles, artists' names, etc.*
- *The number of characters that can be used for file/folder names varies depending on the file system and format of each CD. The system supports the following standards. (The number of characters shown here includes the extension.)*
  - *ISO 9660 Level 1: 12 characters maximum*
  - *ISO 9660 Level 2: 31 characters maximum*
  - *Romeo: 128 characters maximum*
  - *Joliet: 64 characters maximum*
  - *Long File Name: 128 characters maximum*



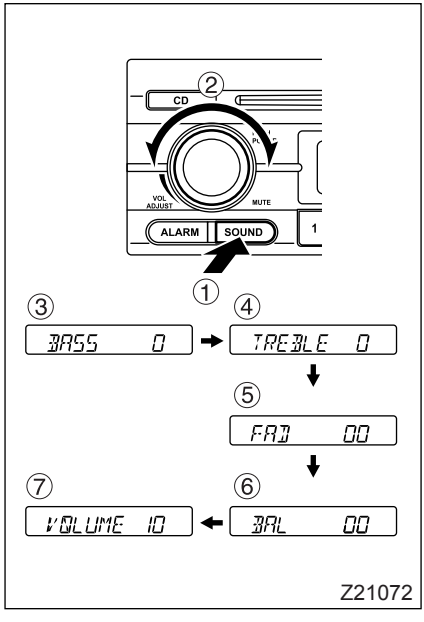
2 Volume and tone adjustments

① Power/volume knob
② SOUND button
③ Display
④ Volume/adjustment mode indication



2.1 Volume

- Use the power/volume knob to adjust the volume.
- Press the knob to turn on the audio system. Give the knob a long press to turn off the system.
- Turn the knob clockwise ⑤ to increase the volume, or counterclockwise ⑥ to reduce it.
- The volume is adjustable from levels 0 to 41.
  - The volume/adjusting mode display shows the selected volume level.
    Example: Volume level 11
- With the system switched on, briefly pressing the knob mutes the sound, and pressing it again turns the sound on.
  - The display will show “MUTE”.



2.2 Adjusting the tone and fade/balance

Use both the "SOUND" button ① and power/volume knob ② to adjust the tone of the sound and the fader (frond-rear audio level balance)/balance (right-left audio level balance).

1. Press the "SOUND" button to select the desired adjustment mode.

- Each time the "SOUND" button is pressed, the adjustment mode will change as follows:
  "BASS" ③ → "TREBLE" ④ → "FAD" (fader) ⑤ → "BAL" (balance) ⑥ → "VOLUME" ⑦
  If you do no operation in the 5-second period after selecting a mode, the mode will be automatically cancelled.

2. Make adjustments as desired in the selected mode by turning the power/volume knob.

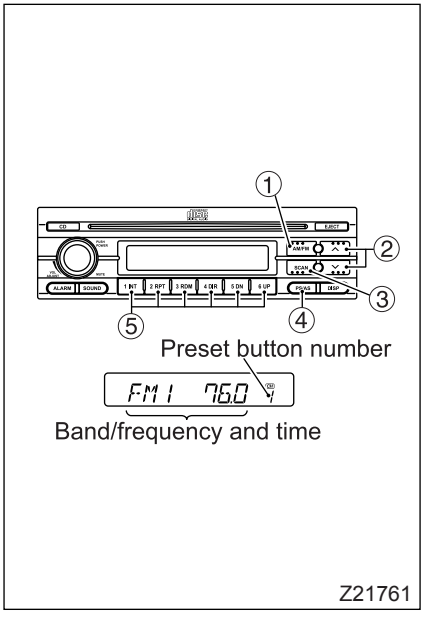
- **Adjustment modes**

Adjustment mode	Display indication	Adjustable range	Description
Bass tone adjustment	BASS	–5 to +5	If the displayed number has a minus sign, bass tone is de-emphasized as the number increases; bass tone is emphasized if the number has a plus sign. The number 0 represents the neutral adjustment.
Treble tone adjustment	TREBLE	–5 to +5	If the displayed number has a minus sign, treble tone is de-emphasized as the number increases; treble tone is emphasized if the number has a plus sign. The number 0 represents the neutral adjustment.
Fader adjustment	FAD	R15 to F15	If the displayed number is preceded by “FAD F”, the audio level of the front speakers increases while that of the rear speakers decreases as the number increases. The result is the reverse if the number is preceded by “FAD R”.
Balance adjustment	BAL	R15 to L15	If the displayed number is preceded by “BAL L”, the audio level of the left speakers increases while that of the right speakers decreases as the number increases. The result is the reverse if the number is preceded by “BAL R”.

NOTE:
If the audio system has no rear speakers connected, selecting an increased “FAD R” number in the fader adjustment mode will result in too small overall sound volume. Select the neutral adjustment or an appropriate “FAD F” number instead.

3 Radio

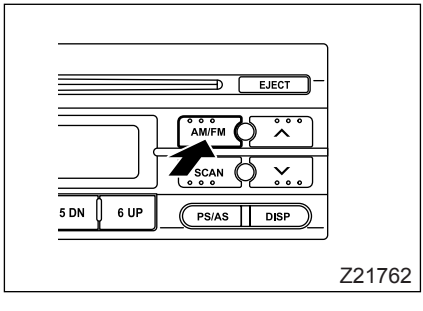
① **“AM/FM” button (FM1/FM2/AM1/AM2 selector button)**
② **“∧” and “∨” tuning buttons**
③ **Scan search button**
④ **“PS/AS” button (automatic tuning/memory button)**
⑤ **Preset buttons**

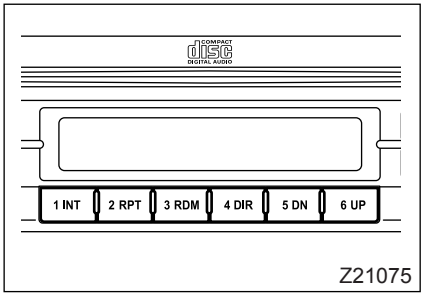


3.1 To listen to the radio

1. With the starter switch in the “ACC” or “ON” position, press the power/volume knob or the “AM/FM” button to turn on the radio.
   Give the power/volume knob a long press to turn off the radio.
2. Extend the antenna. ⇨ P. 10-11
3. Tune to the desired station.

- Press the “AM/FM” button.
  If the audio system has been in the CD player mode, it will switch to the radio mode.
  If the system has been switched to the radio mode, the band changes in the following sequence each time you press the button:
  FM1 → FM2 → AM1 → AM2.





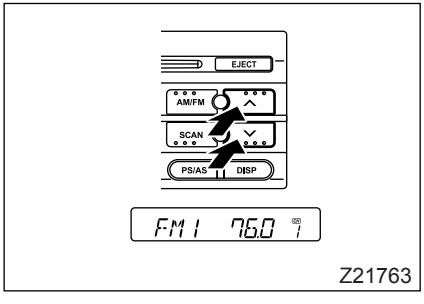
Z21075

- To tune to a preset station, use either of the following methods:
  - Press one of the preset buttons “1” to “6”.
  - Press the “PS/AS” button. The radio will automatically tune to a preset station and receive signals from the station for 10 seconds before tuning to the next preset station. Press the button a second time during the 10-second period to stay tuned to a desired station.
- To tune to a non-preset station, press the “∧” or “∨” button.
- The display indicates “ST” when tuned to a stereo broadcasting station.

4. Adjust the volume using the power/volume knob.
5. Make the fader, balance and tone adjustments using the “SOUND” button and power/volume knob.

3.2 Manual tuning

Use the “∧” or “∨” button.
∧: Press this button for higher frequencies.
∨: Press this button for lower frequencies.
If you keep pressing one of these buttons, the frequency changes quickly upward or downward.



Z21763

3.3 Automatic tuning using the “∧” and “∨” buttons

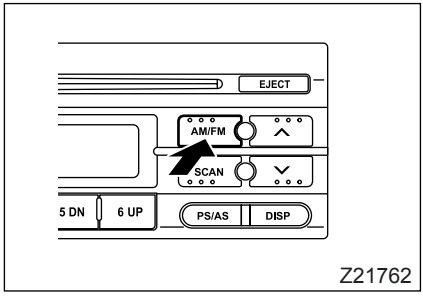
Give the “∧” or “∨” button a long press (more than 1 second) and then release it.
After a short beep, the radio starts automatic tuning. It will then stay tuned to the first station with good reception.
∧: Press this button for higher frequencies.
∨: Press this button for lower frequencies.

NOTE:
Use manual tuning if you cannot tune to a desired station by automatic tuning due to poor signal reception.

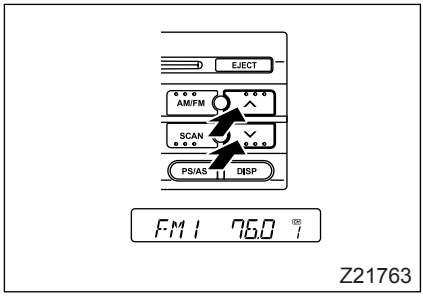
3.4 Programming stations to preset buttons

- **Manual programming**

1. Select the desired band from FM1, FM2, AM1 and AM2 using the “AM/FM” button.



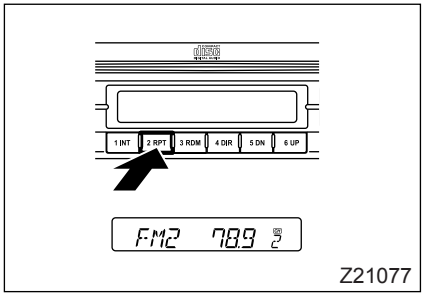
Z21762



Z21763

2. Make the frequency of your desired station appear on the display by using the “∧” or “∨” tuning button.
   ∧: Press this button for higher frequencies.
   ∨: Press this button for lower frequencies.
   If you give the “∧” or “∨” button a long press (more than 1 second) and then release it, the radio starts automatic tuning after a short beep and will then stay tuned to the first receivable station.

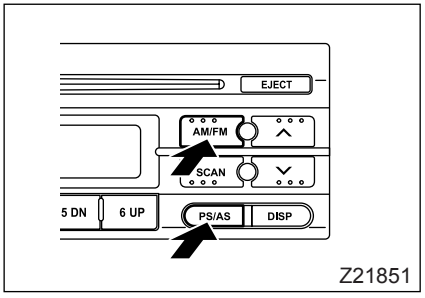
NOTE:
Use manual tuning if you cannot tune to a desired station by automatic tuning due to poor signal reception.



Z21077

3. Give the desired preset button a long press. A short beep will sound indicating that the selected station has been programmed to the button.

NOTE:
- *If you program a new station to a preset button to which another station has previously been programmed, the original station will be automatically cancelled.*
- *If the battery is disconnected or the associated fuse is removed, all stations programmed to preset buttons are erased from memory and you will need to program the stations again.*



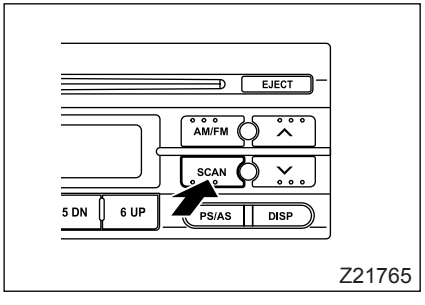
- **Automatic programming**

1. Select the desired band from FM1, FM2, AM1 and AM2 using the “AM/FM” button.
2. Give the “PS/AS” button a long press.
   The radio will start automatic tuning. Each time the radio tunes to a station with good reception, the station is automatically programmed to a preset button. The lowest frequency station is programmed to button “1” and the highest frequency station is programmed to button “6”.

NOTE:
If the number of stations with good enough reception for automatic tuning is smaller than the number of preset buttons, the remaining buttons may maintain the original memory.

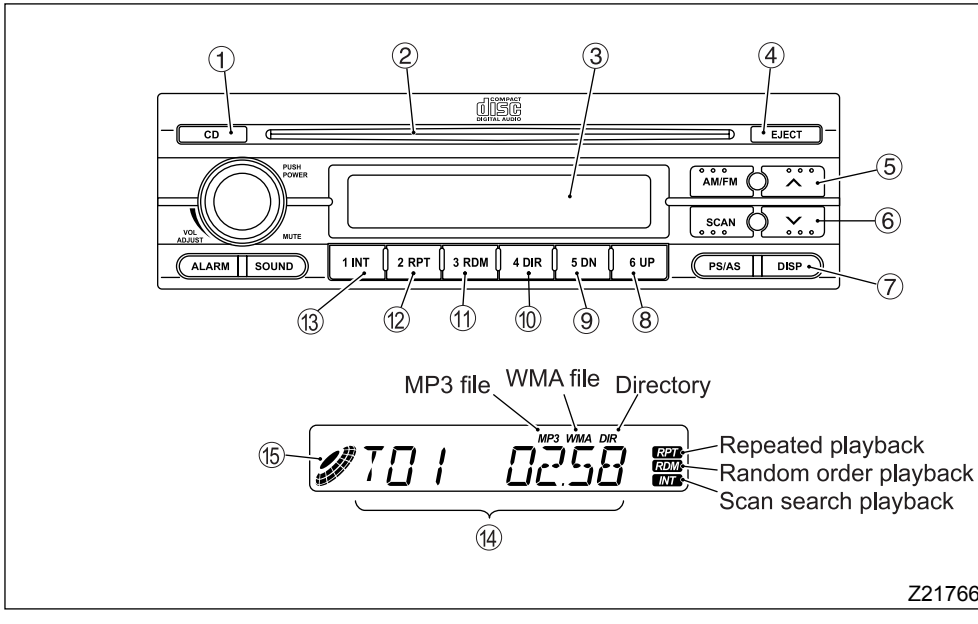
3. After completing the automatic programming, the radio will tune to all the memorized stations one after another, receiving the broadcast from each station for 10 seconds. If you press the “PS/AS” button another time, the radio stays tuned to the station being received at that time.

3.5 Automatic tuning using the “SCAN” button



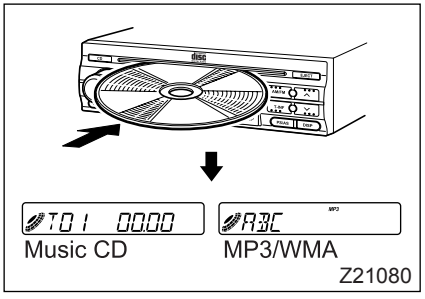
- Press the “SCAN” button. The radio will automatically tune to a station of a higher frequency.
- The radio receives the broadcast from the station for 10 seconds. After the 10-second period, the radio will start the next scan tuning.
- To stop the scan tuning, press any other button.

4 CD player



① **"CD" button**
② **Disc slot**
③ **Display**
④ **Disc eject button**
⑤ **Upward track search button/fast forward button**
⑥ **Downward track search button/fast reverse button**
⑦ **"DISP" button (display selector button)**
⑧ **Upward folder search button (MP3/WMA)**
⑨ **Downward folder search button (MP3/WMA)**
⑩ **Directory button (MP3/WMA)**
⑪ **Random play button**
⑫ **Repeat button**
⑬ **Scan search playback button**
⑭ **Music information and time display**
⑮ **"Disc in" indication**

- The CD player turns on if you press the power/volume knob or "CD" button, or if you insert a disc into the disc slot when the starter switch is in the "ACC" or "ON" position.
- Inserting a disc into the disc slot will switch the audio system to the CD player mode even while you are listening to the radio.



4.1 Playing a CD

1. Insert the CD into the disc slot with the labeled surface facing up.
2. The CD player will automatically turn on and start playback.

- In the case of a music CD, the track number and the playing time are displayed.
- In the case of an MP3 or WMA file CD, “MP3” or “WMA” will be displayed in addition to the file name, directory or playing time.

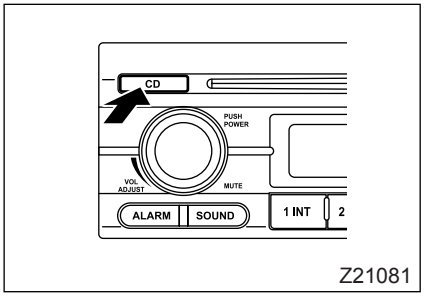
⚠ CAUTION

Do not try to play an 8 cm (3-inch) CD with this system. An adapter used with it may cause the CD player to become faulty.

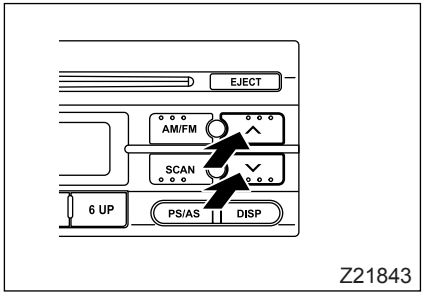
NOTE:

- *A “disc in” message is displayed when a CD is already inside the player.*
- *After inserting a CD, the player takes several seconds to read data before starting playback. It will usually take longer for a CD-RW than for other types of CD.*

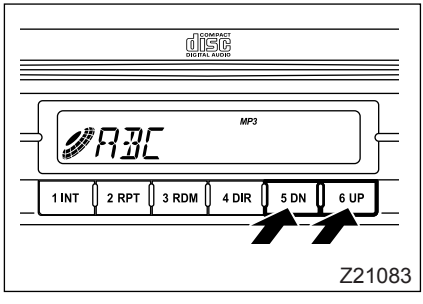
4.2 Switching to CD playing while listening to the radio



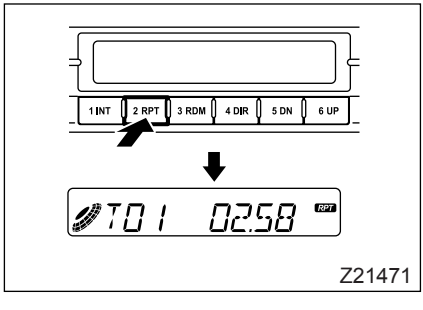
If you press the “CD” button while a CD is inside the player, playback will start beginning with the track segment just after the one at which the previous playback stopped.



Z21843



Z21083



Z21471

4.3 Basic operations

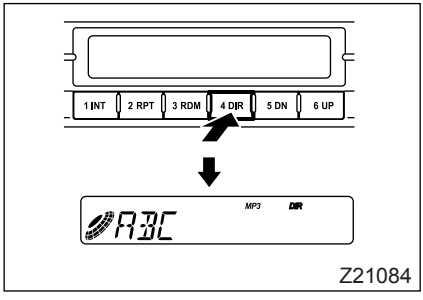
- **Fast forwarding/fast reversing**
  - Press the "∧" or "∨" tuning button for as long as necessary. Rapid disc reading continues forward or backward until the button is released.
    ∧: Press this button for fast forwarding.
    ∨: Press this button for fast reversing.
  - Playback starts as soon as you release the button.
- **Track searching**
  Press the "∧" or "∨" tuning button until the display indicates the desired track number.
  ∧: Press this button for a higher track number.
  ∨: Press this button for a lower track number.
- **Folder searching (MP3/WMA file CDs)**
  Press the "5" or "6" preset button as many times as necessary to make the desired file title appear on the display.
  5: Press this button once for the next file.
  6: Press this button once for the preceding file.
  The display will indicate the title of the folder and then the title of the first file.
- **Pausing the playback**
  The currently playing track is paused if you press the "CD" button. Press the button another time to cancel the pause mode.

NOTE:

- *Track searching is possible within the same folder for an MP3/WMA file CD.*
- *While an MP3/WMA file is being fast-forwarded or fast-reversed, the sound will be reproduced only intermittently.*

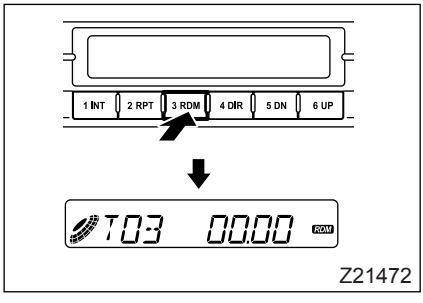
4.4 Repeating the same track

- Press the "2" preset button.
- The display will show "RPT". (Playback of the next track will be repeated if you press the button between two tracks.)
- Pressing the same button again cancels the repeated playback mode.



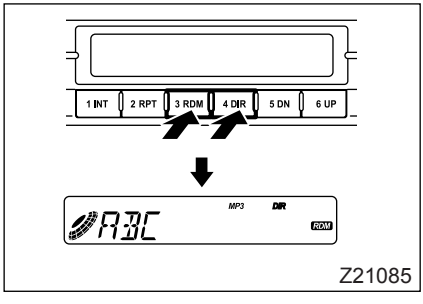
4.5 Repeating the music programs in a folder (MP3/WMA file CDs)

- Press the “4” preset button.
- The display will show “DIR”.
- Pressing the same button again cancels the repeated playback mode.



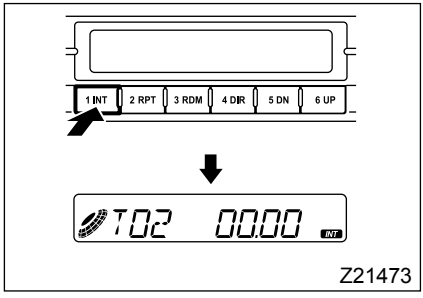
4.6 Playing the tracks in random order

- Press the “3” preset button.
  The tracks on the CD will be played back in a different order from the recorded order.
- The display will show “RDM”.
- Pressing the same button again cancels the random playback mode.



4.7 Playing the music programs in a folder in random order (MP3/WMA file CDs)

- Press the “4” preset button to make “DIR” appear on the display, then press the “3” preset button.
  Alternatively, press the “3” preset button to make “RDM” appear on the display, then press the “4” preset button.
- The display shows both “DIR” and “RDM” simultaneously.
- Pressing the “3” preset button again plays the programs in a folder in repeated playback mode. Pressing the “4” preset button again plays the programs in random playback mode.

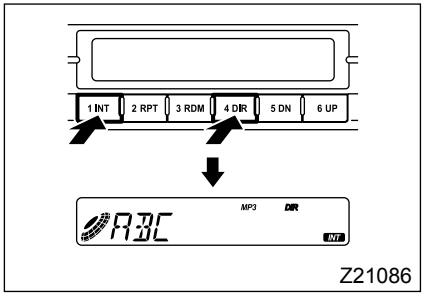


Z21473

4.8 Scan search playback

The player plays back the first 10-second part of each track one after another.
This function is useful for finding your favorite piece of music.

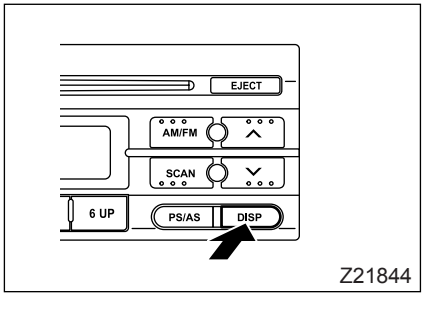
- Press the “1” preset button.
- The display shows “INT”, and the player starts playing the first 10-second part of each of the next and following tracks one after another.
- Pressing the same button again cancels the scan search playback mode.



Z21086

4.9 Scan search playback for programs in folder (MP3/WMA file CDs)

- Press the “4” preset button to make “DIR” appear on the display, then press the “1” preset button.
  Alternatively, press the “1” preset button to make “INT” appear on the display, then press the “4” preset button.
- The display shows both “DIR” and “INT” simultaneously, and the player starts playing the first 10-second parts of the programs in a folder one after another.
- Pressing the “1” preset button again plays the programs in the folder in repeated playback mode.
  Pressing the “4” preset button again resumes the scan search playback mode.



Z21844

4.10 Selecting information items on the display (MP3/WMA file CDs)

- Each time you give the “DISP” button a long press, the display toggles among information items in the following sequence:
  File title → File number → ID3 tag → Folder title
  - When the ID3 tag display is selected, the following items are displayed sequentially and repeatedly:
    Title name → Artist name → Album name

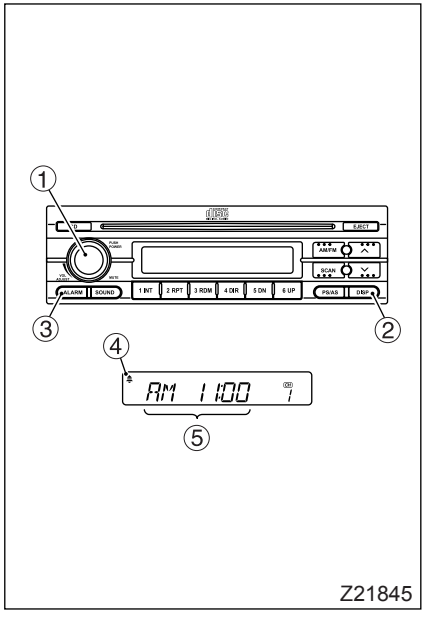
NOTE:
ID3 tag is not displayed if it contains no entries.

4.11 Ejecting a disc

- If you press the “EJECT” button, the player stops playback and ejects the disc.
- As soon as you remove the disc, the radio starts receiving the station you last listened to.

NOTE:
To protect the disc from dust or other contamination, the disc is drawn back inside the player automatically if it is left in the ejected state for 10 seconds. Automatic playback does not start in this case.

5 Clock

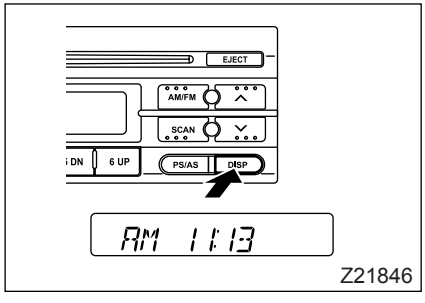


Z21845

① **Power/volume knob**
② **“DISP” button (display selector button)**
③ **“ALARM” button**
④ **Alarm symbol**
⑤ **Time**

The clock is always displayed when the starter switch is in the “ACC” or “ON” position and the audio system is turned off.

5.1 To display the clock in other conditions

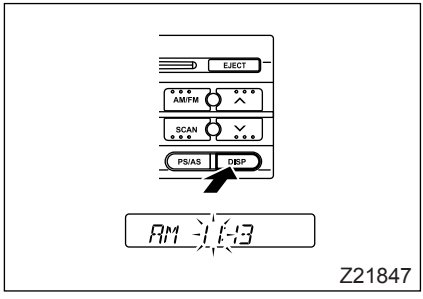


Z21846

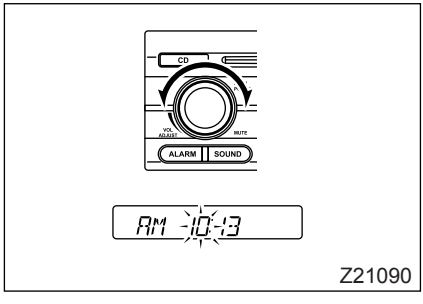
- When the starter switch is in the “ACC” or “ON” position and the audio system is turned on, the clock can be displayed by pressing the “DISP” button.
  When the starter switch is in the “LOCK” position or the key is removed from the starter switch, give the “DISP” button a long press to make the clock appear on the display.

5.2 Setting the clock

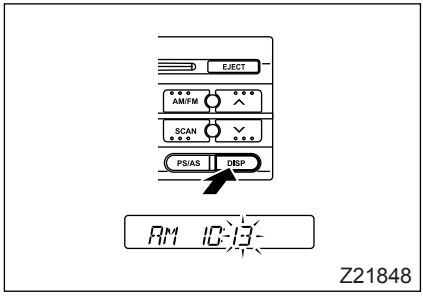
1. Give the “DISP” button a long press while the display is showing the time of day. A short beep will sound, and the hour part of the time display will start flashing.



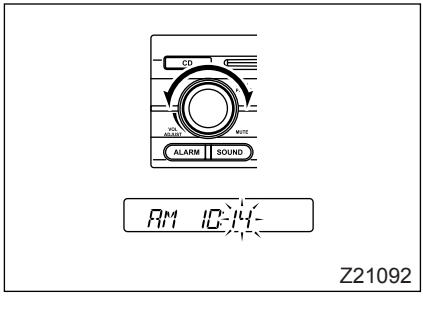
2. Adjust the hour by turning the power/volume knob.
   Clockwise: The hour increases.
   Counterclockwise: The hour decreases.

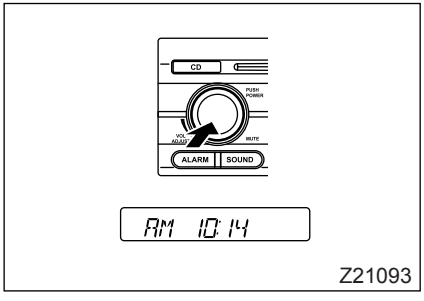


3. Press the “DISP” button. A short beep will sound, and the minute part of the time display will start flashing.



4. Adjust the minutes by turning the power/volume knob.
   Clockwise: The minutes increase.
   Counterclockwise: The minutes decrease.





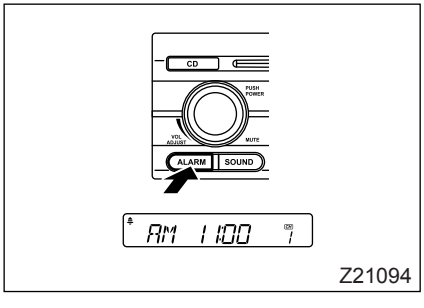
5. Press the power/volume knob to complete the clock setting.
   The original display will resume about 5 seconds later.

6 Alarm

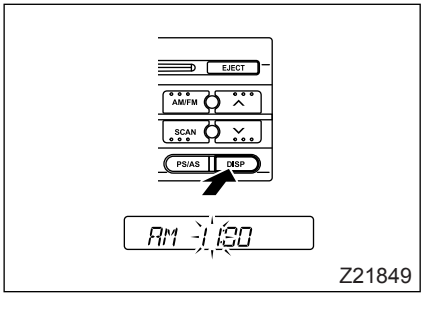
If you set the alarm to the desired time, a buzzer will sound at the preset time.

NOTE:
The alarm time setting is cancelled if the battery is disconnected or the associated fuse is removed. You will then need to set the alarm time again.

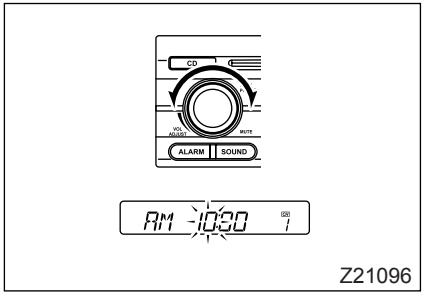
6.1 Setting the alarm time



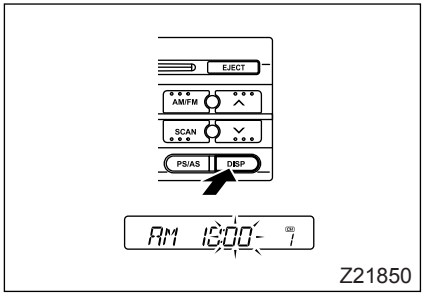
1. Press the “ALARM” button to switch to the alarm time display.



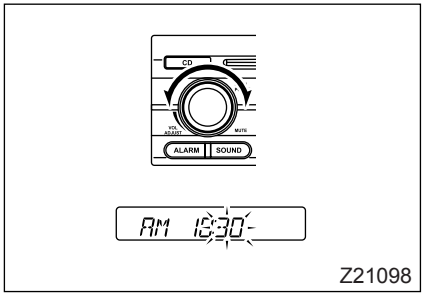
2. With the alarm time appearing on the display, give the “DISP” button a long press. A short beep will sound, and the hour part of the alarm time display will start flashing.



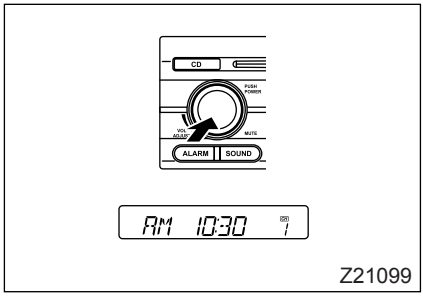
3. Adjust the hour by turning the power/volume knob.
   Clockwise: The hour increases.
   Counterclockwise: The hour decreases.



4. Press the “DISP” button. A short beep will sound, and the minute part of the time display will start flashing.

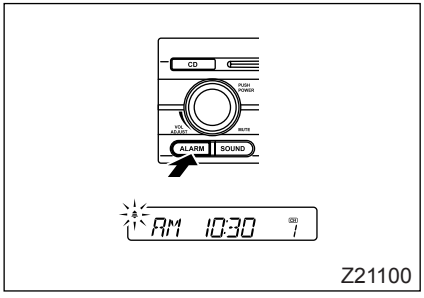


5. Adjust the minutes by turning the power/volume knob.
   Clockwise: The minutes increase.
   Counterclockwise: The minutes decrease.



6. Press the power/volume knob to complete the alarm time setting.
   The original display will resume about 5 seconds later.

NOTE:
Even with the starter switch in the “LOCK” or “ACC” position, you can display the preset alarm time by pressing the “ALARM” button.



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6.2 Activating the alarm

- Giving the “ALARM” button a long press activates (arms) the alarm; giving another long press deactivates (disarm) the alarm. A short beep sounds every time the alarm is activated or deactivated.
  If the alarm time is not yet set, the display automatically changes to the alarm time setting screen. You should then set the alarm time according to the procedure described in the preceding paragraph.
- Alarm symbol appears when the alarm is activated. It disappears when the alarm is deactivated.
- The alarm buzzer sounds even during radio reception or CD playback, the beep being superimposed on the radio or CD sound.
- The alarm buzzer sounds at the preset time and the beep lasts 3 minutes. To stop the beep, push any button other than the power/volume knob. If you push the power/volume knob, the alarm stops and the radio turns on or off.

NOTE:

- *You can activate or deactivate the alarm by giving the “ALARM” button a long press even when the starter switch is in the “LOCK” or “ACC” position.*
- *The set alarm time will be cleared if you do not operate any radio/CD player control for one week or you do not operate the vehicle (i.e. the starter switch is not turned to the “ON” or “ACC” position) for one week.*
- *The alarm is triggered regardless of the starter switch position. We recommend deactivating the alarm when not using it.*

7 Audio system problems, probable causes and actions

- **General problems**

Symptom	Probable cause	Action
System produces no sound.	• The mute is turned on. • Fader adjustment is inappropriate.	• Turn off the mute. • Adjust the fader appropriately.
Poor sound quality	There is a mobile phone or other device producing interfering radio waves near the audio system.	Move the device away from the system. If the condition persists, contact an authorized dealer.

- **Radio**

Symptom	Probable cause	Action
Poor sound quality	Poor signal reception	Retune to an analog broadcasting station.
Automatic preset button programming takes too long.	Number of good receiving stations is less than 6.	Move the vehicle to a place where 6 or more good receiving stations are available and perform automatic preset button programming again.
No stations can be programmed to preset buttons.	This symptom occurs rarely during preset button programming using manual tuning.	Use automatic tuning for preset button programming.

- **CD and player**

Symptom	Probable cause	Action
CD cannot be played back. CD cannot be inserted.	• CD is inserted upside down. • CD is cracked. • There is a foreign object inside the CD slot. • Inappropriate data written to CD. • Of a disc having both music data and MP3/WMA files, an MP3/WMA file is played back.	• Reinsert the CD correctly. • Use a CD without cracks. • Remove the foreign object. • Check the CD data format is appropriate. • Skip a non-reproducing track.
A CD-R/CD-RW cannot be reproduced with your vehicle's system although it can be played back with another audio system.	MP3/WMA files have been produced using an improper combination of CD-R/CD-RW writing software and CD-R/CD-RW recorder.	Reconfirm information on MP3/WMA and use a proper combination of software and recorder.
Sound skips. Noise in sound.	• CD is cracked. • There is a foreign object inside the CD slot.	• Use a CD without cracks. • Remove the foreign object.
CD cannot be ejected.	Label of the CD inside player is peeling off.	Contact an authorized dealer.

Accessories

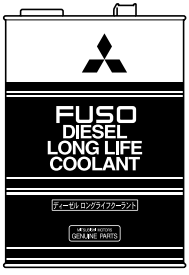
- See an authorized dealer if you are considering adding accessories to your vehicle.
- Your vehicle contains electronic devices. Even though these are protected against interference from electromagnetic emissions, you should refer to an authorized dealer before fitting equipment that emits strong signals, such as mobile telephones.

⚠ WARNING

To avoid the risk of overheating/fire or faulty operation, have electrical accessories connected by an authorized dealer. Never connect them yourself.

11. In cold weather

Coolant 11-2
Engine oil 11-2
Fuels 11-2
When parking the vehicle after replenishing the DEF (Diesel exhaust fluid) 11-3
Other recommendations for cold weather operation 11-3
Installing tire chains 11-4



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Coolant

- When vehicles are shipped from the factory, genuine FUSO DIESEL LONGLIFE COOLANT is added to the coolant in their cooling systems. This additive combines both antifreeze and anti-rust capabilities to sufficiently protect the cooling system from freezing up. However, for added safety, it is recommended that you have an authorized dealer check that the coolant has a proper concentration of the additive before winter begins.
- Be sure to use coolant added with the FUSO DIESEL LONGLIFE COOLANT or equivalent to the recommended concentration. ⇨ P. 12-52

⚠ CAUTION

Never mix FUSO DIESEL LONGLIFE COOLANT with other brands of anti-freeze or anti-corrosion additives since these can detract from its performance. If a different coolant additive has been used and the FUSO DIESEL LONGLIFE COOLANT is to be used, be sure to thoroughly flush the cooling system.

Engine oil

The viscosity of the engine oil increases in cold temperatures, sometimes making it hard to start the engine, especially early in the morning. Therefore, use an engine oil of a viscosity which suits the weather conditions. ⇨ P. 12-23

Fuels

Ordinary diesel fuel gels in freezing temperatures, making it impossible to start the engine.
If you are bound for a cold area, it is recommended that you fuel your vehicle so that it burns more than half the fuel by the time you reach your destination. This allows you to refuel with a grade of diesel fuel appropriate to the colder weather conditions.

⇨ P. 1-5

When parking the vehicle after replenishing the DEF (Diesel exhaust fluid)

If the DEF tank becomes empty in cold weather, perform the driving restriction canceling procedure immediately after refilling the tank with DEF.

⇨ P. 1-11

Other recommendations for cold weather operation

- If the engine fails to start, turn the starter switch back to the “ACC” position or “LOCK” position and wait for the battery to recover before trying to start the engine again.
- As the temperature falls, battery performance decreases. Check the battery electrolyte level and its specific gravity. ⇨ P. 12-83
- In cold weather, use a windshield washer fluid additive in the concentration indicated by the manufacturer’s instructions.

⚠ CAUTION

Do not use engine coolant or antifreeze since these would damage the vehicle’s paint.

- Occasionally check the undercarriage and fender wells, and if necessary remove snow and ice taking care not to damage vehicle parts as you do so. There is ABS equipment, electrical wiring, and so on, on the inside of the tires, so be careful not to damage them when removing snow and ice from the tires.
- The brakes may be frozen up when the vehicle is driven on snow-laden roads or during parking in cold weather. Since frozen brakes are sluggish to function, drive your vehicle carefully while paying attention to vehicles behind as well as in front and checking normal function of the brakes from time to time by slightly depressing the brake pedal. If the brakes are sluggish, depress the brake pedal repeatedly while driving at a low speed until normal braking returns.
- Avoid parking on a slope. Select a level, flat surface not directly exposed to wind or snow as far as possible. If there is wind, turn the front of the vehicle away from the wind.

- Do not apply the parking brake in extremely cold conditions that could cause it to freeze up and become impossible to release. In such conditions, take the following steps:

  1. Stop the vehicle and pull the parking brake lever. Never park on a slope.
  2. Place the gearshift lever in the “P” position.
  3. Block the wheels securely with chocks.
  4. Release the parking brake lever.

- Operate the air conditioner at least once a month to maintain its functions even during the cold season when it is not being used.

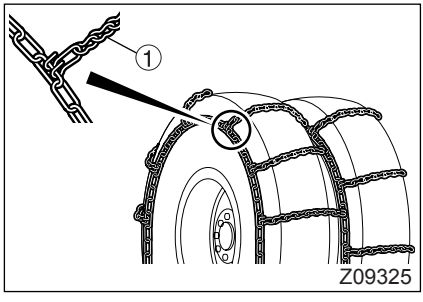
Installing tire chains

<Vehicles other than FG models>

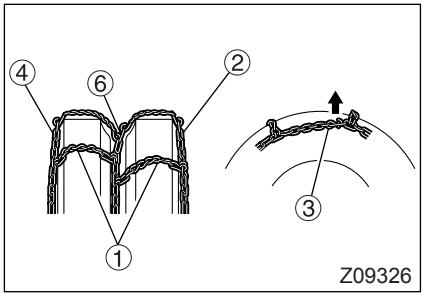
- On FG models, tire chains cannot be used on both front and rear wheels.
- Install the tire chains on the driving wheels.
- Make sure that tire chains are installed properly so that they do not become loose and interfere with other vehicle parts while the vehicle is in motion.
- Use triple chains corresponding to tire size.

⚠ CAUTION

- **Do not use chains on the front wheels on FE; instead, use of snow tires is recommended.**
- **If you use tire chains, be sure to install them without any slack.**
- **When fitting tire chains, refer to the instructions supplied with them.**
- **Drive at low speeds, desirably at speeds lower than 30 km/h (19 mph), when chains are installed on wheels.**
- **Driving on a dry road with chains installed may damage the chains as well as the road surface. Avoid doing so as far as possible.**
- **Make sure that the chains and their spring bands are not excessively worn or otherwise damaged.**
- **If you hear an abnormal noise while driving, stop the vehicle in the nearest safe place and check the tire chains.**

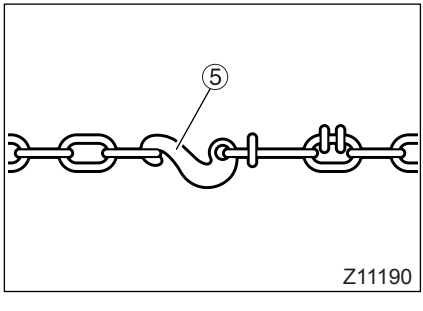


1. Place the chains over the tires with the hook ends of cross chains ① facing outward.

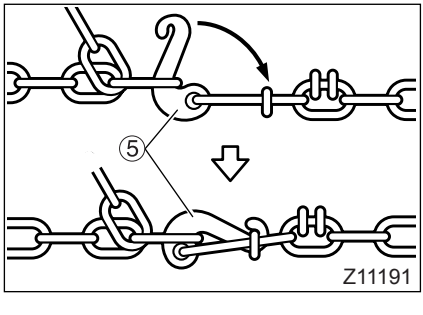


2. Connect the hook ③ of inside chain ②, leaving no excess links. Then, take up the slack in the inside chain by pulling cross chains ① for the inside tire outward.

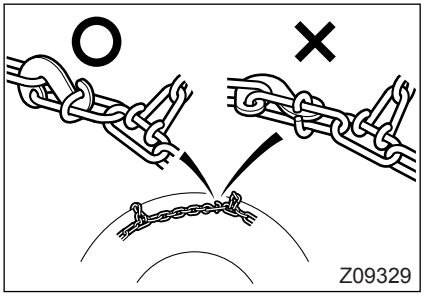
NOTE:
Pull the hook section outward to the possible maximum extent.



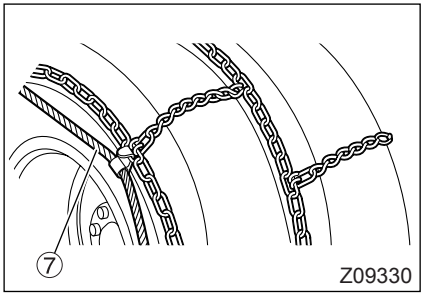
3. Temporarily connect hook ⑤ of outside chain ④ as shown.



4. Pull the middle chain ⑥ as far as possible and connect its hook.
5. Pull both ends of outside chain ④ as far as possible and connect hook ⑤.



6. Ensure that hooks ③ and ⑤ are flat on the tire sidewalls. Also make sure that the chains are not twisted.
7. Fasten extra chain links with a metal wire to prevent them from hitting against other vehicle parts.



8. Fit spring band ⑦. Attach the hooks of spring band on the chain at even intervals with the hook ends facing outward.
9. After driving the vehicle for 5 to 10 minutes, check the chains for looseness or disconnected hooks.

12. Simple inspection and service

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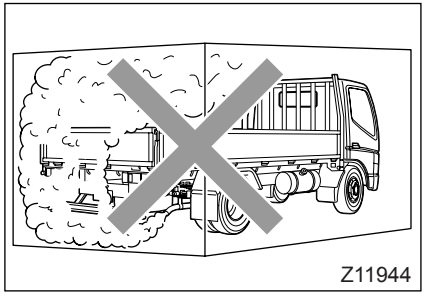
General precautions for servicing the vehicle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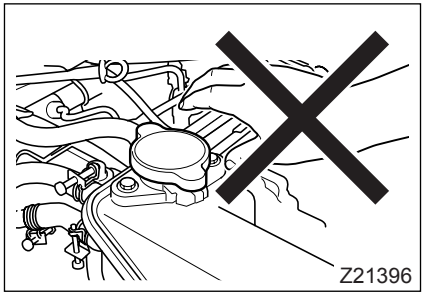

Z21396

⚠ WARNING

- **Never run the engine in a poorly ventilated area. Exhaust emissions contain carbon monoxide, which can cause unconsciousness or death if breathed.**
- **Never smoke when servicing your vehicle since its fuel and the gases given off by its battery are highly flammable.**
- **When tilting the cab, carefully follow the instructions in this manual. Be sure to fit the stopper into the notch in the lock lever to prevent the cab from dropping.**
  After letting the cab down, check that it is locked securely in position. (Vehicles other than Crew-cab models) ⇨ **P. 12-7**
- **The engine gets extremely hot when running and stays hot for some time after being turned off. To avoid being burned, do not touch the engine, exhaust manifold, radiator, exhaust pipe, or other engine-related parts until they have cooled down.**
- **Do not loosen the engine pressure cap while the engine is hot. Wait for the engine to cool down, then grip the cap with a cloth and turn it slowly to release the internal pressure before removing it completely.**
- **Never crawl under the vehicle when it is supported only by a hydraulic jack since the jack could slip out of position and cause the vehicle to crush you.**
- **The battery cables and starter cables carry extremely high voltages. Be careful not to short-circuit them, e.g., with a tool, since this could cause serious injury.**
- **Take great care when working near the fan and fan belt. Never touch them when they are moving.**
- **Be careful not to hurt yourself on the corners of the body when performing inspections.**
- **Keep oily rags and other flammable items in a safe place.**
- **Put away all tools and rags after use. Items left in the engine bay could get hot and catch fire.**

⚠ WARNING

- **Be sure to stop the engine before performing inspections with the cab tilted or engine access opening opened. If the engine was running and your hands, clothes, or other items touched or came into close proximity to the engine's rotating parts, they could be dragged into the mechanism, resulting in injuries.**
  If you must unavoidably perform inspections with the engine running, do not on any account touch the fan or any other rotating part.
- **The fuel injection system includes a high voltage circuit. You could receive an electric shock if inspections are performed with the starter switch in the "ON" position. If it is unavoidable to perform inspections with the starter switch turned "ON", be careful not to touch the electric wiring or connectors.**

Please take the following precautions when servicing your vehicle:

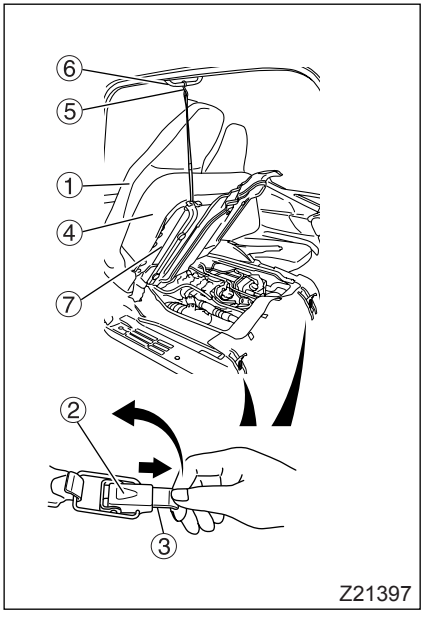
- Make sure the vehicle is on safe, level ground.
- Prevent the vehicle from moving by pulling the parking brake lever and blocking the wheels with chocks.
- Remove the starter key unless you need to run the engine.
- Take off wristwatches, rings, and neckties, and wear clothing that will not obstruct movement or snag on parts of the vehicle.
- Wear all safety gear necessary for your task, for example, hard hat or goggles.
- Use the correct tools for your task.
- Do not make adjustments or repairs unless you know exactly what you are doing. For servicing that is difficult or not shown in this manual, take your vehicle to an authorized dealer.
- When servicing electrical equipment, disconnect the negative terminal (–) of the battery.

⚠ CAUTION

- **Replace filters and filter elements regularly. Blocked or damaged filters and elements can reduce the engine's power and impair its operation. Always use genuine parts for replacements. Also, oils and greases should be those recommended in this manual. Use of non-genuine parts, or oil and grease not recommended, may lead to failures.**

⇨ P. 14-3

- **When replacing the oil or coolant, be sure to have a container suitable for catching drained fluid ready.**
- **Dispose of drained oil and coolant in the specified manner. Disposing of them irresponsibly could cause environmental harm.**
- **The muffler contains an oxidation catalyst and ceramic filter. Do not kick or knock these components, since the catalyst and/or ceramic filter could be damaged.**
  Water collecting in the muffler is slightly acidic and should not be touched. If you touch this water, rinse it off under a faucet.
- **The BlueTec® exhaust gas aftertreatment continues to work for 2 minutes even after the starter switch is turned to "LOCK". If you need to disconnect the battery or an electrical system connector for inspection or servicing, wait for at least 2 minutes after shutting off the engine.**



To reach the access opening

<Crew-cab models>

1 Engine access opening

There is an opening under the assistant driver's seat which provides access to the engine for inspection and servicing.
Uncover and cover the opening as follows:

- To uncover the opening

1. Tip the seatback ① forward.
2. Fold back the floor mat. Release the two clamps ② by pulling the handle ③ down and then turning it up while still pulling it, holding only the end of the handle.
3. Raise the seat cushion ④, then release the retaining hook ⑤ on the bottom of the seat cushion.

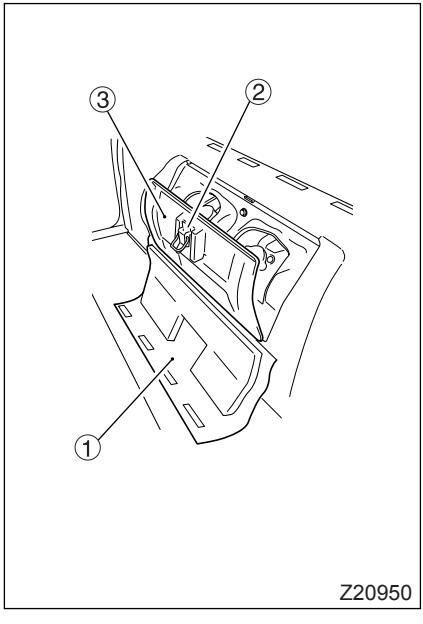
4. Attach the retaining hook to the grip ⑥ beside the assistant driver's seat to hold the seat in place.

- To cover the opening

1. Remove the retaining hook from the grip while supporting the seat cushion to prevent it from dropping.
2. Attach the retaining hook to the spring ⑦ on the bottom of the seat cushion to hold the hook in place.
3. Gently lower the seatback and seat cushion, then fasten the clamps to retain it.
4. Return the floor mat and seatback to their original positions.

⚠ CAUTION

- **Be careful not to trap the seat belt or floor mat when closing the engine access opening.**
- **Completely fasten the clamps after closing the engine access opening.**



2 Power steering fluid and engine coolant level inspection opening

In front of the rear seat, there is an opening for inspecting and replenishing the power steering fluid and engine coolant.
Uncover and cover the opening as follows:

1. Remove the cover ①.
2. Raise the clamp ② to unhook it and then swing down the inspection opening cover ③.
   Perform the above procedure in reverse to cover the opening.

Tilting the cab

<Vehicles other than Crew-cab models>

NOTE:
A Crew-cab cannot be tilted.

1 Preparation

⚠ WARNING

- **Before tilting or lowering the cab, make sure that the area around the cab is clear of people and obstructions.**
- **Never tilt the cab when the vehicle is on any kind of slope. The cab will move too quickly under the effect of inertia if it is tilted on a slope, possibly causing damage to various vehicle components. Doing so is dangerous as the hook may not engage completely when the cab is lowered.**
- **Never tilt the cab with persons inside.**
- **To ensure safety, two people should work together to tilt the cab if it has a roof deck or other heavy item attached to it. One person working alone could become unable to support the cab and have an accident as a result.**
- **If any heavy item of cargo is on the roof deck or in the cab, remove it before tilting the cab. Otherwise, its weight could cause the cab to move suddenly during tilting, resulting in an accident.**
- **Do not touch the steering wheel, gearshift lever, parking brake lever, or any other control in the cab while the cab is tilted.**

⚠ CAUTION

If any item of cargo is in the cab, retain or remove it. Otherwise, it may tip or fall and get damaged when the cab is tilted.

NOTE:
Turn off the air conditioner before tilting the cab. Tilting the cab with the air conditioner running would cause the water that drains out of the air conditioner to leak into the cab.

- Park the vehicle on a flat and level surface and stop the engine.
  Tilting the cab on a slope is dangerous since the cab could swing up unexpectedly. This could also damage the mechanism because of the huge, sudden stresses on it.
- Prevent the vehicle from moving by pulling the parking brake lever and blocking the wheels with chocks.
- Put the gearshift lever in the “P” position.
- Remove water or other liquids from inside the cab before tilting. Also, remove from the cup holders any beverage whose container is open.
- Close both doors completely.
- Before tilting the cab, make sure there is adequate clearance in front of the cab and above it.

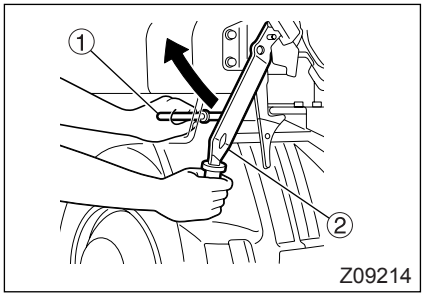
Clearance in front	1 m or more (3.3 ft. or more)
Clearance above	1 m or more (3.3 ft. or more)

  If there are any obstructions within the clearance areas shown above, remove them.
- Retract the radio antenna.

2 Tilting the cab

⚠ CAUTION

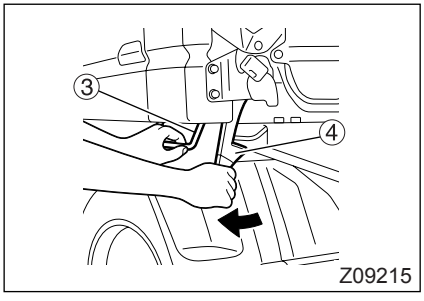
Raise the cab gently. Raising it quickly with great force could damage the cab tilt mechanism.



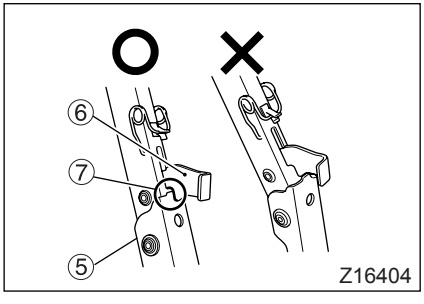
1. Pull lever A ①. With lever A still pulled, pull up lever B ②. Keep lever A pulled until the lever B has been fully raised.

⚠ CAUTION

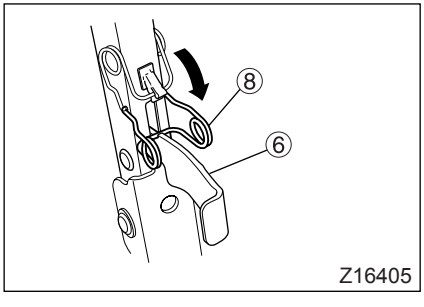
Lever B must only be raised when lever A has been pulled. If an attempt is made to raise lever B by force, it may be damaged as a result.



2. Grasp tilt grip ③ and pull lever C ④. The cab will rise slightly.



3. Hold the tilt grip and raise the cab until the end of cab stay ⑤ engages with the notch ⑦ of the lock lever ⑥. The cab is secured when they are engaged.



4. Still holding the tilt grip, insert the stopper ⑧ into the notch of the lock lever.

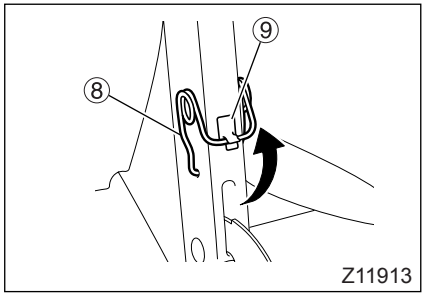
⚠ WARNING

- **Be sure to fit the stopper into the notch in the lock lever to prevent the cab from dropping.**
- **Do not raise the cab holding lever B or lever C. Failure to observe this precaution can lead to the cab-tilt mechanism being damaged or to incomplete locking when the cab is lowered back down.**

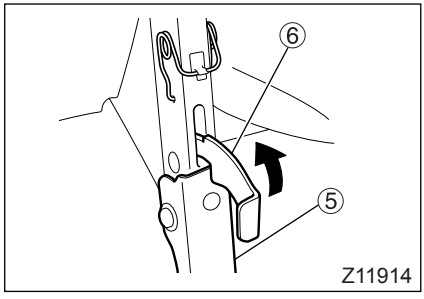
3 Lowering the cab

⚠ WARNING

- **Before lowering the cab, make sure that you have not left rags, tools, etc. in the engine compartment. Flammable objects left inside the engine compartment can cause fires.**
- **To ensure safety, two people should work together to lower the cab if it has a roof deck or other heavy item attached to it. One person working alone could become unable to support the cab and have an accident as a result.**



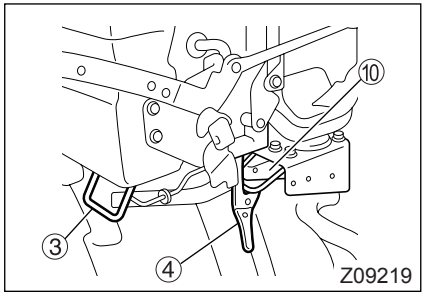
1. Release the stopper ⑧ and retain it in the clip ⑨.



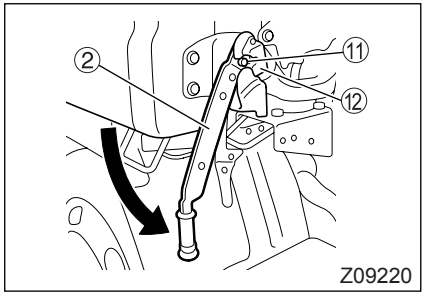
2. Hold the tilt grip to support the cab. Lift the lock lever ⑥ and fold the cab stay ⑤.

⚠ WARNING

- **When you have unlocked the cab stay, immediately move your hands away from the lock lever. The cab stay will tip toward the rear of the vehicle, so your hands could otherwise get trapped.**
- **Do not lower the cab holding lever B or lever C. Failure to observe this precaution can lead to the cab-tilt mechanism being damaged or to incomplete locking of the lowered cab.**
  Hold the cab tilt grip when lowering the cab.



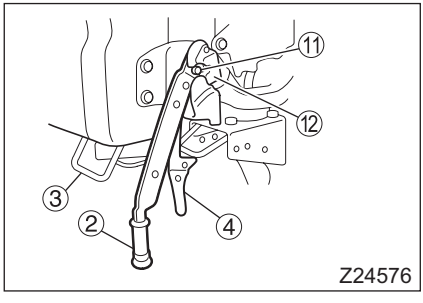
3. Still holding the tilt grip ③, lower the cab until the hook on lever C ④ engages with the cab mount ⑩.



4. Push down lever B ② until the pin ⑪ engages with the latch ⑫.

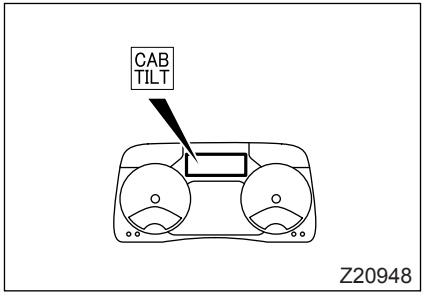
4 Checking locking of the cab

When the cab is lowered down, the state of locking should be checked as follows. If incomplete locking is identified, repeat the cab tilting procedure and lower once again. If incomplete locking still exists, never drive the vehicle and contact your authorized dealer.



Z24576

1. Confirm that the latch ⑫ is fully engaged with the pin ⑪. Also confirm that lever B ② does not move when it is pulled.
2. While pulling the lever C ④, pull the grip ③, to raise the cab and confirm that the cab does not rise.
3. If the cab does rise, once tilt up the cab fully and then lower and lock the cab again.



Z20948

4. Turn the starter switch to the “ON” position, then make sure the multi-information display does not indicate the CAB TILT warning.

⚠ WARNING

Do not drive the vehicle while the multi-information display is showing CAB TILT. Vibration could cause the cab to rise. If the multi-information display is showing CAB TILT, tilt, lower and lock the cab again.

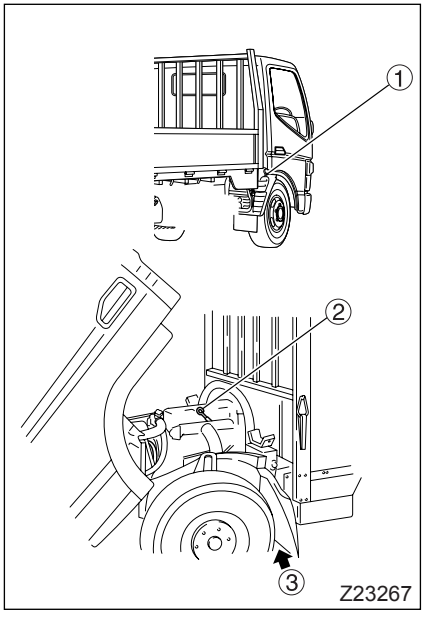
Pre-operational checks

Be sure to perform the pre-operational checks for the items listed below at the start of each day's operation in order to ensure safe and comfortable driving. If you find anything unusual which you are unable to repair yourself, you should have this corrected at an authorized dealer before operating the vehicle.

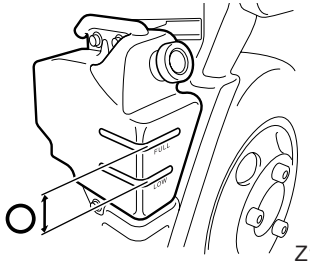
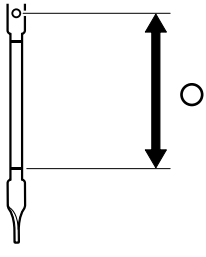
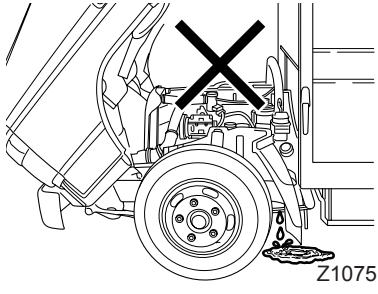
⚠ CAUTION

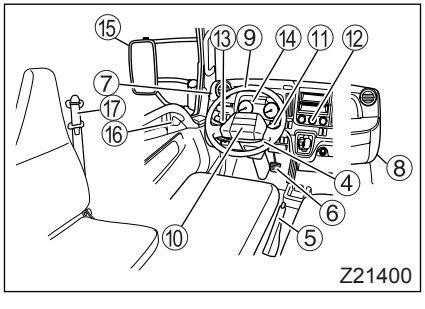
If you drive your vehicle under any of the following conditions, the engine oil level will rise more quickly than usual and so you should check the engine oil level daily, before starting to drive.

- **The vehicle is driven mostly at 20 km/h (12 mph) or slower.**
- **Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).**
- **The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).**



1 Before starting the engine

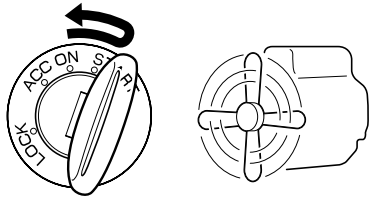
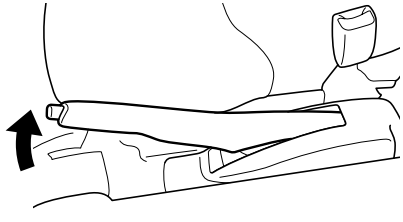
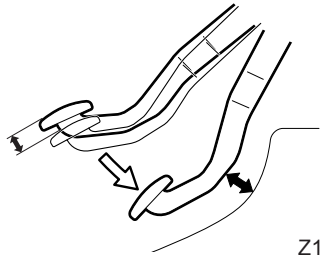
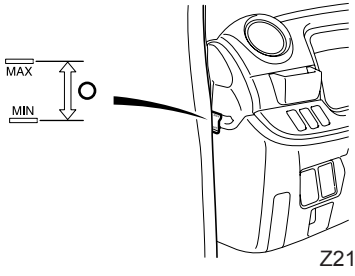
①	 Z15730	**Coolant level** Check that the coolant level is between the "FULL" and "LOW" marks on the reservoir tank. ⇨ P. 12-56
②	 Z21399	**Engine oil level** Check that there is sufficient engine oil using the oil level gauge. Change the engine oil if its level is above the circle mark on the oil level gauge. ⇨ P. 12-24
③	 Z10751	**Leakage of coolant, fuel and oil** Check the underneath of the vehicle for any sign of leakage.

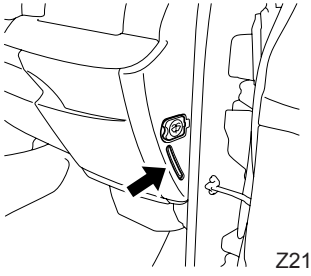
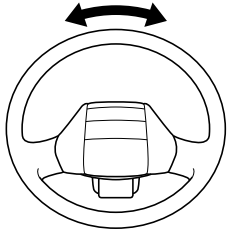
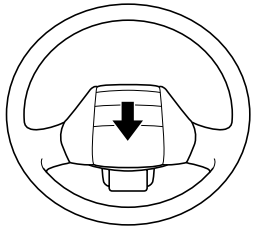
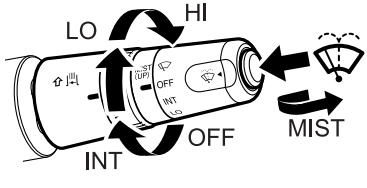


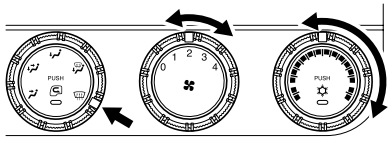
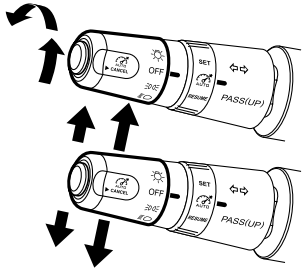
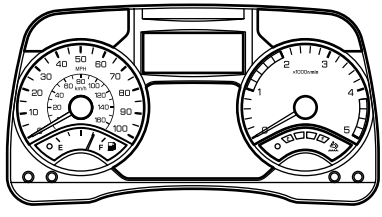
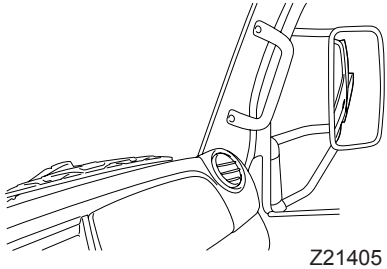
Z21400

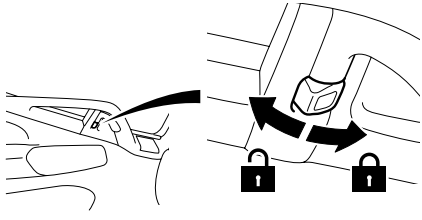
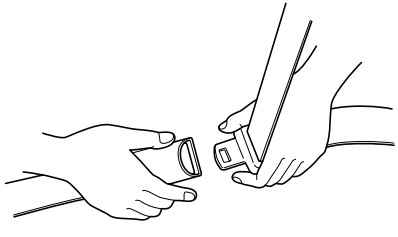
2 In the driver's seat

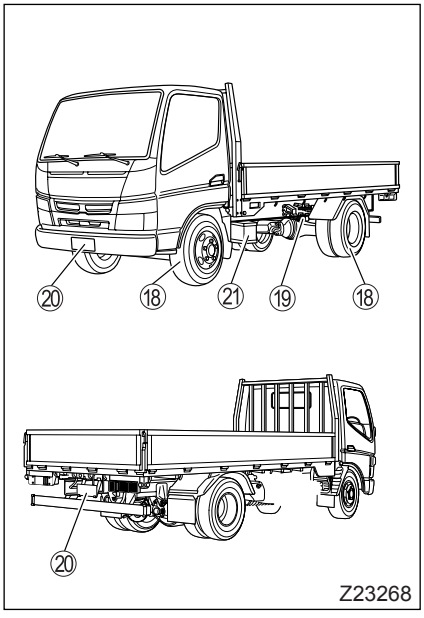
Start the engine and perform the following checks ④ and after while allowing the engine to warm up.

④	 Z09197	**Engine conditions** Check the engine for smooth starting and quiet running.
⑤	 Z10681	**Parking brake lever stroke** Check that the parking brake lever stroke is 7 to 9 notches when the lever is pulled with a force of 294 N (66 lbs., 30 kgf). ⇨ P. 12-66
⑥	 Z11955	**Service brake pedal** Make sure that the brake pedal has 0.1 to 3 mm (0.0039 to 0.12 in.) free play when pressed by finger. Check also that when the brake pedal is fully depressed, there is a gap of 10 mm (0.39 in.) or more between the pedal and the floor. ⇨ P. 12-65
⑦	 Z21401	**Brake fluid level** Check that the brake fluid level is between the “MAX” and “MIN” marks on the reservoir tank. ⇨ P. 12-38

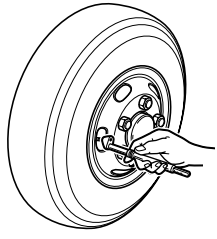
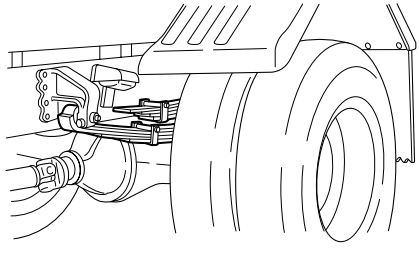
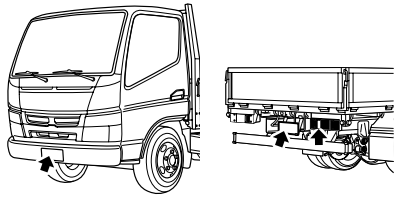
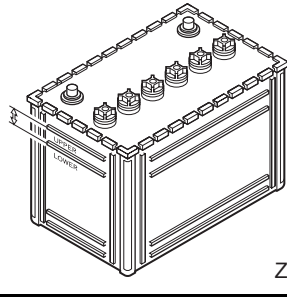
⑧	 Z21402	**Windshield washer fluid level** Confirm that the windshield washer fluid level is above the bottom of the inspection window. ⇨ P. 12-82
⑨	 Z11947	**Steering wheel free play** Gently turning the steering wheel, check that its play is more than 10 mm (0.39 in.) and less than 20 mm (0.79 in.). ⇨ P. 12-63
⑩	 Z11948	**Horn operation** Press the horn button to check that the horn is working properly. ⇨ P. 5-46
⑪	 Z23262	**Windshield wiper and washer operation** Check the washer for proper fluid spray direction and the wipers for normal action. ⇨ P. 5-18

⑫	 Z22325	**Defroster** Make sure that warm air blows properly onto the windshield. ⇨ P. 9-4, 9-9
⑬	 Z21403	**Lighting system** Make sure that each lamp lights up or flashes properly. Check lamp lenses for dirt and damage. ⇨ P. 5-16
⑭	 Z21404	**Gauge, warning/indicator lamp operation** Check that gauges, warning lamps and indicators are working properly. ⇨ P. 6-2
⑮	 Z21405	**Rearview mirrors** Seated in the driver's seat, adjust the angles for clear views of the sides and rear. Make sure the mirrors are clean.

⑯	 Z11951	**Door locks** Push the lock knob and verify that the door does not open even when the inner handle is operated.
⑰	 Z11943	**Seat belts** Confirm that the seat belt buckles function correctly when fastening and unfastening.

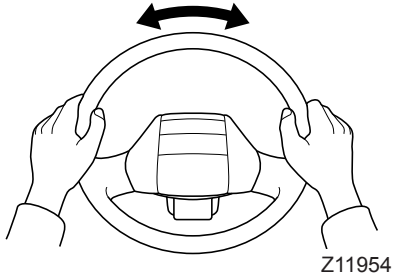
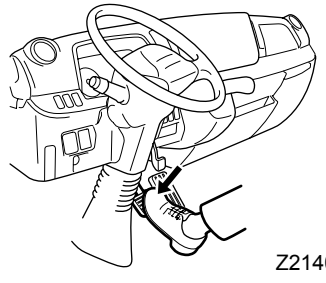


3 While walking around the vehicle

⑱	 Z21588	**Wheels and tires** Check the disc wheels for cracks and other damage. Check the tires for inflation pressure, tread groove depth, foreign objects in grooves, cracks, uneven wear, softening and blistering. ⇨ P. 12-67
⑲	 Z10753	**Suspension springs** Check for broken springs and tilt of vehicle body toward either side.
⑳	 Z21407	**License plate and reflector condition** Check the license plate and reflectors for loose installation, damage, and dirt.
㉑	 Z15361	**Battery fluid level** Check that the battery fluid level is between the “UPPER” and “LOWER” level lines marked on the sides of the battery case. ⇨ P. 12-83

4 While driving at slow speeds

Perform the following checks while driving in a safe place at speeds lower than 20 km/h (12 mph).

㉒	 Z11954	**Steering wheel operation** Check that the steering wheel does not vibrate or pull to one side and that it is not unduly heavy. Also make sure that the steering wheel returns to its neutral position smoothly. ⇨ P. 12-64
㉓	 Z21408	**Brake performance** Depress the brake pedal and check that the brakes work effectively and evenly on all wheels. ⇨ P. 12-65

Lubrication

Application and replacement of lubricants at the specified intervals is vital to the vehicle's performance, longevity, and safety. Following the maintenance schedule will give optimum results.

⇨ P. 15-1

- If the vehicle is often used in demanding conditions, for example, on unpaved roads, near the coast, or in cold regions, lubricants should be applied and replaced more quickly than specified in the maintenance schedule.
  Consult an authorized dealer for the maintenance schedule appropriate to your vehicle operating conditions.
- Use only the lubricants specified. ⇨ P. 14-3
- Special lubricants must be used if the vehicle is used at temperatures below –23°C (–10°F). For details, refer to an authorized dealer.

⚠ CAUTION

- **Apply and replace lubricants regularly. Use of lubricants beyond their designed service life could cause bearings or other components to seize up and cause an accident.**
- **Any checking, application, or replacement of lubricants should be carried out with the vehicle parked on level ground.**
- **Wipe all lubricant inspection windows and filling ports carefully to prevent the entry of mud, trash, water, or other contaminants.**
- **Never flush waste oil into the sewers or onto the ground. Take it to a gas station or authorized dealer.**

Greasing

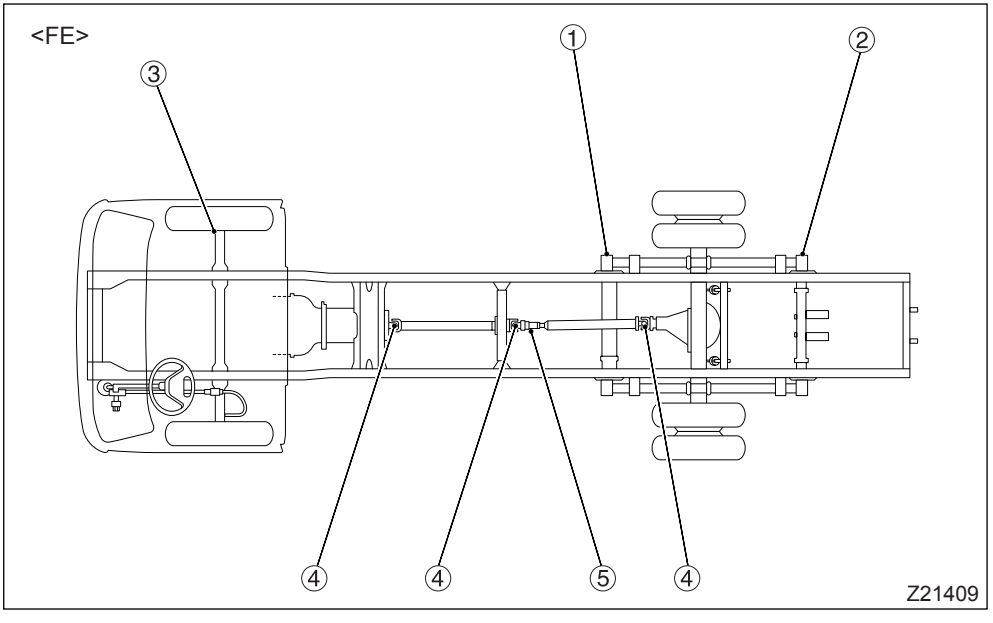
1 Grease nipples

Remove all dust and dirt from the grease nipples before using them. Always use the recommended grease.

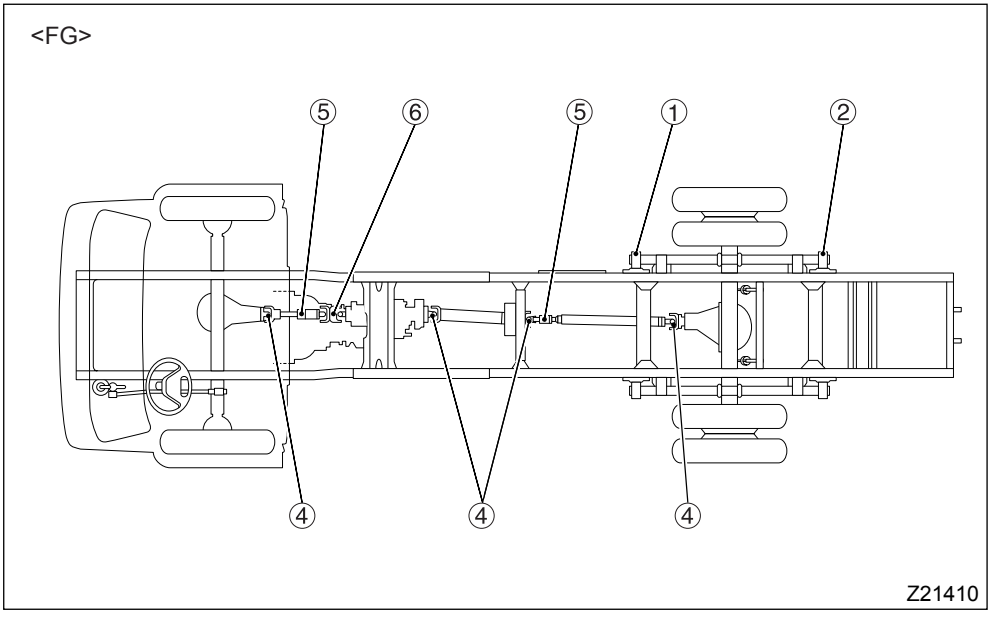
⚠ CAUTION

Wipe away any grease that sticks to wires or rubber hoses and any grease that overflows from the grease nipples.

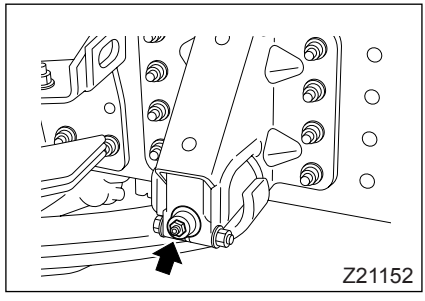
<FE>



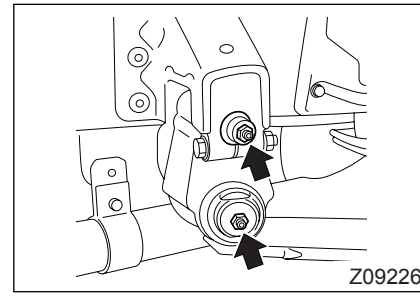
<FG>



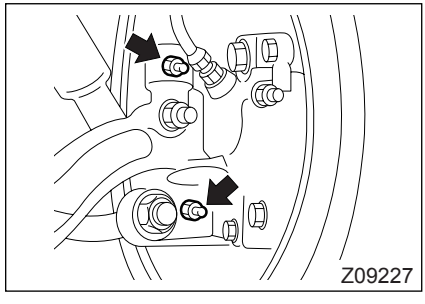
①


Z21152

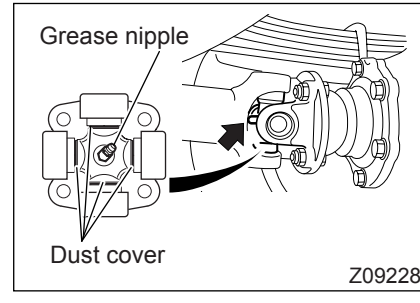
②


Z09226

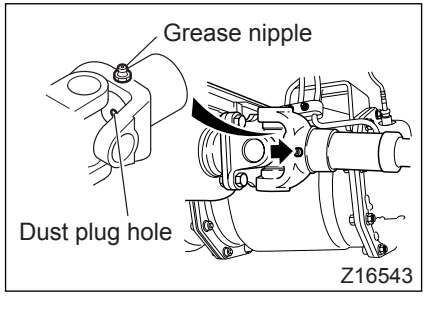
③


Z09227

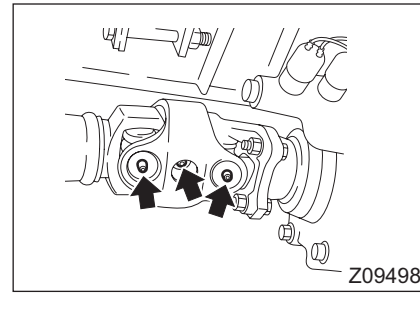
④


Grease nipple
Dust cover
Z09228

⑤


Grease nipple
Dust plug hole
Z16543

⑥


Z09498

Recommended lubricant:
Chassis grease
NLGI No. 1 (Li soap)

Greasing intervals	Every 30,000 km (18,000 miles) or every 12 months

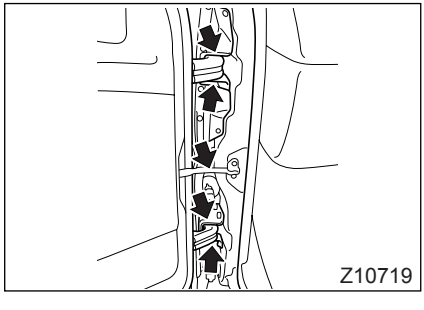
① Rear spring pin, front (2 points each on both sides)
② Rear spring pin, rear (4 points each on both sides)
③ King pin bearing (4 points in total on both sides)

Recommended lubricant:
Wheel bearing grease
NLGI No. 2 (Li soap)

Greasing intervals	Every 30,000 km (18,000 miles) or every 12 months

④ Propeller shaft universal joint
Pump in grease until it comes out of the dust covers (at 4 places) of the universal joint.
⑤ Propeller shaft slip joint
Pump in grease until it comes out of the dust plug hole of the slip joint.
⑥ Propeller shaft double cardan joint <FG>

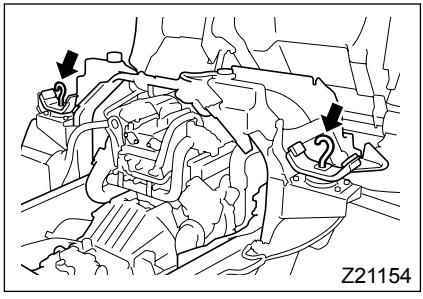
NOTE:
The number of greasing points on the propeller shaft differs from model to model.



2 Door hinge (6 points in total on both sides; 12 points in Crew-cab models)

Greasing intervals	Every 30,000 km (18,000 miles) or every 12 months

Recommended lubricant:
Chassis grease
NLGI No. 1 (Li soap)

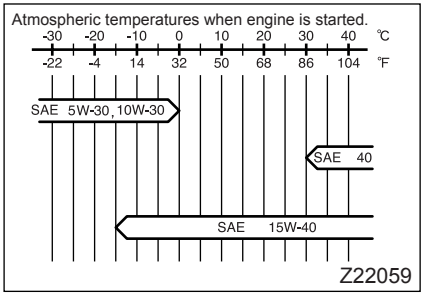


3 Anchor hooks (two places)

<Not applicable to Crew-cab models>

Greasing intervals	Every 30,000 km (18,000 miles) or every 12 months

Recommended lubricant:
Chassis grease
NLGI No. 1 (Li soap)


Atmospheric temperatures when engine is started.
-30 -20 -10 0 10 20 30 40 ℃
-22 -4 14 32 50 68 86 104 ℉
SAE 5W-30, 10W-30
SAE 40
SAE 15W-40
Z22059

Oils and fluids

1 Engine oil

Performance, life, and startability of the engine depend to a large degree on the engine oil. Always use oil of the specified grade and viscosity.

Replacement intervals	Normal use	Every 30,000 km (18,000 miles) or every 12 months
	Severe use*	Every 15,000 km (9,000 miles)

*;
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) .

- The vehicle is driven mostly at 20 km/h (12 mph) or slower.
- Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).
- The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).

⚠ CAUTION

- **If the ENG OIL warning is displayed, replace the engine oil as soon as possible.**
- **If the ENG OIL warning and ENG SYS warning (amber) are displayed alternately, replace the engine oil immediately. If the same oil is used even after the warning, the engine may suffer various problems, including uncontrolled revving of the engine in an extreme case.**

- **When the vehicle is used under severe conditions, the engine oil level will rise more quickly than usual and so you should check the engine oil level daily, before starting to drive.**

Recommended lubricant:
Engine oil
API classification CJ-4 or ACEA C2
SAE40, 5W-30, 10W-30, 15W-40

⚠ CAUTION

- **Use only the specified engine oil. Any other oils may contain substances that cause the ceramic filter inside the DPF to be loaded with particulate matter (PM) prematurely to the capacity and thus shorten the effectively functioning period of the DPF.**
- **Change the engine oil at the specified intervals. During the regeneration process of the DPF, part of the fuel may mix into the engine oil while the PM is being removed by burning. If the engine oil is not changed at the specified intervals, it may excessively deteriorate due to mixing of fuel and could cause engine failure. In the worst case, the engine could spontaneously run at an abnormally high speed.**

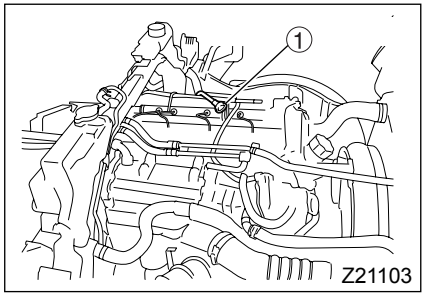
Quantity required:

Quantity	Approx. 6.2 liters (6.5 qts)

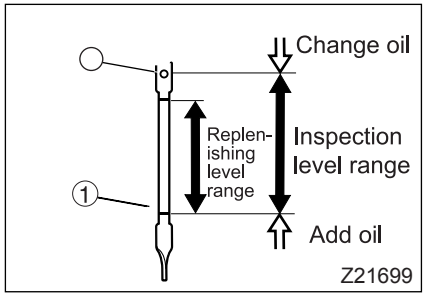
1.1 Checking

NOTE:

- *Check the engine oil level with the vehicle parked on a level place and the engine stopped. A correct engine oil level cannot be determined when the vehicle is tilted, or if the engine is running or the time after stopping the engine is too short. Let the engine stand at least 10 minutes after stopping it before checking the oil level.*
- *The quantity of engine oil may increase due to the fuel that may have mixed with it when the DPF trapped PM is removed by burning. This does not indicate any abnormality. For the same reason, the engine oil can smell like fuel; this also does not indicate any abnormality.*



1. Tilt the cab. ⇨ P. 12-6
   If the vehicle is a Crew-cab model, uncover the engine access opening under the assistant driver's seat. ⇨ P. 12-4
2. Remove oil level gauge ① and wipe off oil with a cloth.
3. Fully insert the oil level gauge in the crankcase, and gently draw it out.

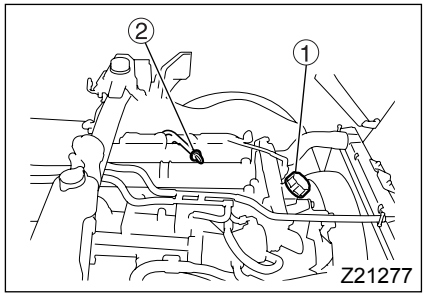


4. The oil level marked on the oil level gauge should be within the "inspection level range" indicated in the figure (between the lower notch and circle mark).
5. If necessary, add engine oil to a level within the "replenishing level range" indicated in the figure. Change the oil if its level is above the circle mark on the oil level gauge. The engine oil must also be changed if it is extremely dirty.

⚠ CAUTION

If the oil level is above the circle mark on the oil level gauge, change the engine oil immediately. Because this is a sign of deteriorated engine oil performance, continued use of the same oil will cause engine failure and could even cause uncontrolled revving of the engine.

6. After the check, insert the oil level gauge into position and secure it properly.



1.2 Adding oil

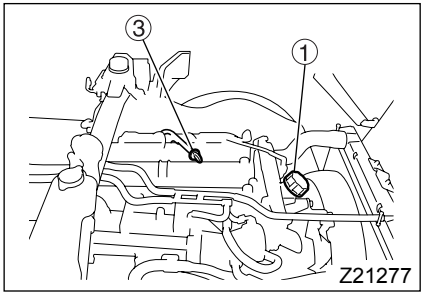
1. On Crew-cab models, the engine access opening is located under the assistant driver's seat. Clean the area around oil filler cap ① to prevent dust and dirt from entering the engine.
2. Remove the oil filler cap and add oil as necessary.
3. Make sure that the oil level is correct. If the oil level is checked immediately after adding, the reading may be lower than the actual level because all added oil may have not yet reached the oil pan. Wait for at least 5 minutes after adding oil and then check the oil level with the oil level gauge. If you add too much oil, remove oil through the drain plug on the oil pan to achieve the correct level.
4. Install the oil filler cap.

⚠ WARNING

Take care not to spill engine oil as engine oil on the exhaust manifold or other hot sections of engine could catch fire. Wipe clean the oil if spilt.

⚠ CAUTION

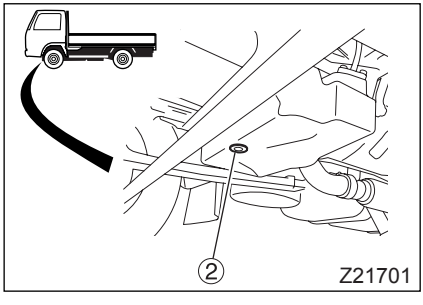
- **The added oil should be of the same grade and viscosity as the oil originally placed in the engine.**
- **Take care not to add more than the specified quantity of oil. The engine can be severely damaged if the correct engine oil level is not maintained.**
- **When adding engine oil, take care not to spill it.**
  If oil is spilled on a belt, the belt will slip on pulleys.



1.3 Replacement

NOTE:
You must reset the engine control unit every time after replacing the engine oil. See 1.4 "Resetting the engine control unit" for details of the method. If you cannot do it yourself, have it done by an authorized dealer.

1. Clean the surfaces around the oil filler cap ① and remove the oil filler cap.



2. Remove drain plug ② from the oil pan to remove the oil. Replace the oil filter at the same time.
⇨ P. 12-40

⚠ WARNING

The engine oil is extremely hot immediately after the vehicle has been operated. Take care to avoid being scalded when draining hot oil. Give the oil time to cool before draining it.

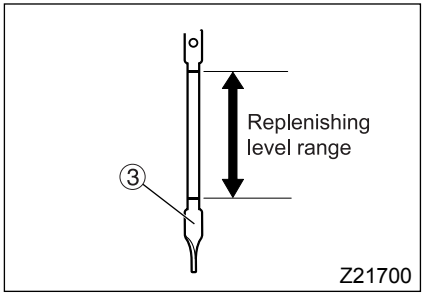
NOTE:
Oil removal is quicker if performed not so long after the vehicle has been stopped and while the oil is still warm.

3. After oil has been drained out, clean the area around the drain plug hole.

4. Replace the O-ring with a new one and tighten the drain plug.

Tightening torque	20 N·m (14 ft.lbs., 2.0 kgf·m)

5. Carefully pour fresh engine oil through the oil filler.
6. Wait for more than 5 minutes and check the oil level using the oil level gauge ③.
7. Crank the engine with the starter switch, then start the engine. ⇨ P. 5-8
8. Let the engine idle allowing oil to circulate throughout the engine parts. Then, stop the engine and wait for more than 10 minutes before checking the oil level again. Also check for possible oil leaks.
9. After adding oil to the correct level, ensure that the drain plug, oil filler cap and oil level gauge are securely installed.
10. Reset the engine control unit. See 1.4 “Resetting the engine control unit” for the method.



⚠ CAUTION

- **Take care not to add more than the specified quantity of oil. The engine can be severely damaged if the correct engine oil level is not maintained.**
- **If the engine is frequently run at high speeds or under heavy loads, the engine oil will deteriorate quickly and must be replaced sooner than specified.**

⚠ WARNING

Take care not to spill engine oil as engine oil on the exhaust manifold or other hot sections of engine could catch fire. Wipe clean the oil if spilt.

1.4 Resetting the engine control unit

1. Turn the starter switch to “ON”. Do not start the engine.
2. Depress the accelerator pedal to the floor and keep it there for at least 20 seconds.
3. While still keeping the accelerator pedal depressed to the floor, pump the brake pedal at least 6 times.
   When the engine control unit is reset, the ENG SYS indicator (amber) appears on the display for about 10 seconds.

NOTE:
The engine control unit calculates the engine oil replacement time. The steps above are necessary in order to reset the data used for determining the engine oil replacement time.

2 Clutch control fluid

Replacement intervals	Every 60,000 km (36,000 miles) or every 24 months

Recommended oil: FUSO ATF SP III

Clutch control fluid quantity

Quantity required	2.0 liters (2.1 qts)

2.1 Check, addition, and replacement

Have the clutch control fluid checked, added, or replaced by an authorized dealer.

3 Transmission gear oil

Replacement intervals	Every 60,000 km (36,000 miles) or every 24 months

Recommended oil:
Gear oil

Classification	Viscosity	
	Condition	SAE viscosity number
API GL-3	General	80
	Warm region	90
API GL-4	General	80
	Tropical region	90

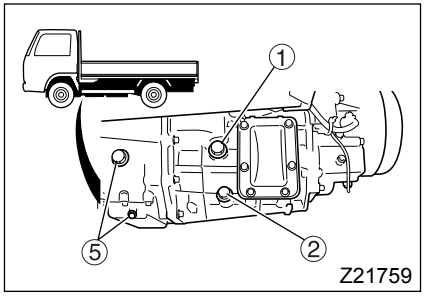
Quantity required:

Quantity required	Approx. 3.5 liters (3.7 qts) Plus approx. 0.2 liters (0.2 qts) for vehicle with standard PTO, or plus approx. 0.3 liters (0.3 qts) for vehicle with large-capacity PTO

3.1 Check

⚠ WARNING

Do not check the oil level immediately after driving, as you could be scalded by extremely hot oil.
Give the oil time to cool before performing the inspection.

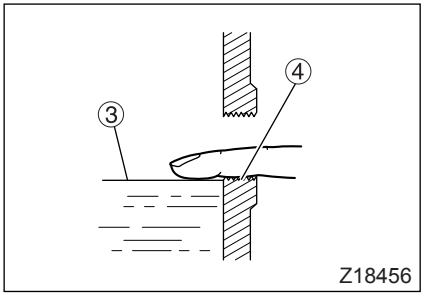


NOTE:
Do not confuse the transmission oil inspection plug ① with the clutch control fluid inspection plug and drain plug ⑤, which are located nearer to the front of the vehicle than the transmission oil inspection plug.

1. Remove inspection plug ①.
2. Check that the oil surface ③ reaches the opening of the inspection plug hole ④ by putting your finger straightly into it. If insufficient, add the oil from the inspection plug hole up to the opening. Put your finger straightly into the inspection plug hole after one minute has passed, and check that the oil is filled up to the opening of the hole.

⚠ CAUTION

The added oil should be of the same grade and viscosity as the oil originally placed in the transmission.



3. Replace the gasket of the inspection plug with a new one.
4. Install the inspection plug after coating its threads with the specified sealant.

Sealant	ThreeBond 1105

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

3.2 Replacement

1. Place a container under the drain plug ②.
2. Remove inspection plug ① and drain plug to let the oil flow out.

⚠ WARNING

Do not replace the oil immediately after driving, as you could be scalded by extremely hot oil. Give the oil time to cool before draining it.

NOTE:

- *Oil removal is quicker if performed not so long after the vehicle has been stopped and while the oil is still warm.*
- *Do not confuse the transmission oil inspection plug ① and drain plug ② with the clutch control fluid inspection plug and drain plug ⑤, which are located nearer to the front of the vehicle than the transmission oil inspection plug and drain plug.*

3. The drain plug is fitted with a magnet. Wipe off any metal particles sticking to the magnet.
4. Replace the gasket of the drain plug with a new one.
5. Coat the threads of the drain plug with the specified sealant.

Sealant	ThreeBond 1105

6. After transmission oil has drained out completely, install and tighten the drain plug.

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

7. Add oil through the inspection plug hole until it reaches the bottom of the hole.
   Put your finger straightly into the inspection plug hole after one minute has passed, and check that the oil is filled up to the opening of the hole.
8. Like with the drain plug, replace the gasket of the inspection plug with a new one, coat the plug's threads with the specified sealant, and then install and tighten the plug.

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

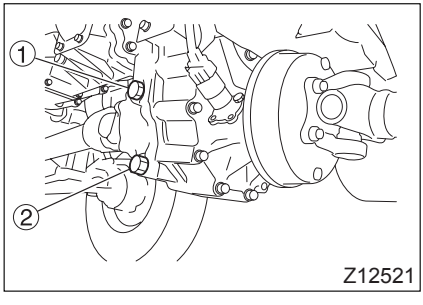
4 Transfer gear oil <FG>

Replacement intervals	Every 60,000 km (36,000 miles) or every 24 months

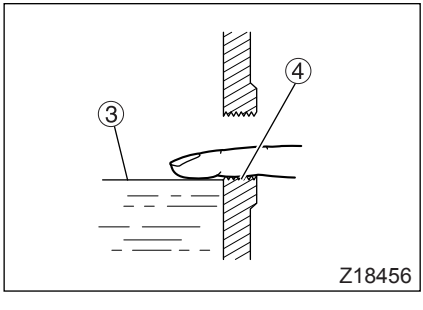
Recommended oil:
Gear oil
API classification GL-3 SAE 80 (general)
API classification GL-3 SAE 90 (warm regions)
API classification GL-4 SAE 80 (general)
API classification GL-4 SAE 90 (tropical regions)

Quantity required:

Quantity	Approx. 3.6 liters (3.8 qts)



Z12521



Z18456

4.1 Check

⚠ WARNING
Do not check the oil level immediately after driving, as you could be scalded by extremely hot oil.
Give the oil time to cool before performing the inspection.

1. Remove inspection plug ①.
2. Check that the oil surface ③ reaches the opening of the inspection plug hole ④ by putting your finger straightly into it. If insufficient, add the oil from the inspection plug hole up to the opening. Put your finger straightly into the inspection plug hole after one minute has passed, and check that the oil is filled up to the opening of the hole.

⚠ CAUTION
The added oil should be of the same grade and viscosity as the oil originally placed in the transfer.

3. Replace the gasket of the inspection plug with a new one.

4. Coat the inspection plug's threads with the specified sealant and install and tighten the plug.

Sealant	ThreeBond 1105

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

4.2 Replacement

1. Remove inspection plug ① and drain plug ② to let the oil flow out.

⚠ WARNING

Do not replace the oil immediately after driving, as you could be scalded by extremely hot oil. Give the oil time to cool before draining it.

NOTE:
Oil removal is quicker if performed soon after the vehicle has been stopped and while the oil is still hot.

2. The drain plug is fitted with a magnet. Wipe off any metal particles sticking to the magnet.
3. Replace the gasket of the drain plug with a new one.
4. Coat the threads of the drain plug with the specified sealant.

Sealant	ThreeBond 1105

5. After transfer oil has drained out completely, install and tighten the drain plug.

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

6. Add oil through the inspection plug hole until it reaches the bottom of the hole.
   Put your finger straightly into the inspection plug hole after one minute has passed, and check that the oil is filled up to the opening of the hole.

7. Like with the drain plug, replace the gasket of the inspection plug with a new one, coat the plug's threads with the specified sealant, and then install and tighten the plug.

Tightening torque	68.6 ± 14.7 N·m (51 ± 11 ft.lbs., 7.0 ± 1.5 kgf·m)

5 Axle housing gear oil

Replacement intervals	Every 60,000 km (36,000 miles) or every 24 months

Recommended oil:
Gear oil
API classification GL-5
Below 40°C (104°F) SAE90
40°C (104°F) or higher SAE140 or 85W-140

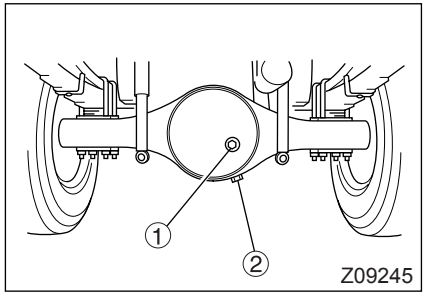
⚠ CAUTION

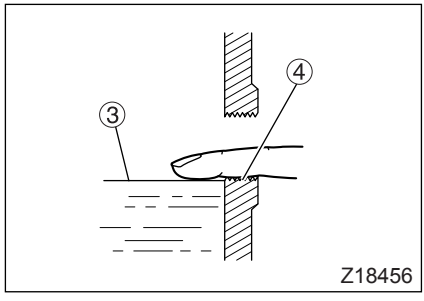
- **Use oil conforming to GL-5, SAE140 or SAE85W-140 if the vehicle is to be driven under heavy load conditions as for example driving up long uphill grades. Remember, however, that this oil is to be used only when the temperature is higher than 10°C (50°F).**
- **On vehicles with a limited slip differential, fill the differential with FUSO LSD GEAR OIL or an equivalent (GL-5, SAE90).**

Quantity required:

Model		Quantity
FE		Approx. 4.5 liters (4.8 qts)
FG	Front axle	Approx. 3.0 liters (3.2 qts)
	Rear axle	Approx. 4.5 liters (4.8 qts)

These oil quantities are given only as guidelines. Be sure to check the correct oil level by removing the inspection plug as indicated below.





5.1 Check

⚠ WARNING

Do not check the oil level immediately after driving, as you could be scalded by extremely hot oil.
Give the oil time to cool before performing the inspection.

1. Remove inspection plug ①.
2. Check that the oil surface ③ reaches the opening of the inspection plug hole ④ by putting your finger straightly into it. If insufficient, add the oil from the inspection plug hole up to the opening.

⚠ CAUTION

The added oil should be of the same grade and viscosity as the oil originally placed in the differential gears.

3. Replace the gasket of the inspection plug with a new one.
4. Install the inspection plug.

Tightening torque	110 ± 10 N·m (81 ± 7 ft.lbs., 11 ± 1 kgf·m)

5.2 Replacement

1. Remove inspection plug ① and drain plug ② to let the oil flow out.

⚠ WARNING

Do not replace the oil immediately after driving, as you could be scalded by extremely hot oil. Give the oil time to cool before draining it.

NOTE:
Oil removal is quicker if performed not so long after the vehicle has been stopped and while the oil is still warm.

2. The drain plug on the front axle is fitted with a magnet. Wipe off any metal particles sticking to the magnet.
3. Replace the gasket of the drain plug with a new one.

4. After oil has drained out completely, install and tighten the drain plug.

Tightening torque	110 ± 10 N·m (81 ± 7 ft.lbs., 11 ± 1 kgf·m)

5. Add oil through the inspection plug hole until it reaches the bottom of the hole.
6. Like with the drain plug, replace the inspection plug gasket with a new one and install the plug by tightening it to the specified torque.

Tightening torque	110 ± 10 N·m (81 ± 7 ft.lbs., 11 ± 1 kgf·m)

6 Brake fluid

Inspection intervals	At the time of pre-operational check
Replacement intervals	Every 24 months

Have the brake fluid replacement performed by an authorized dealer.

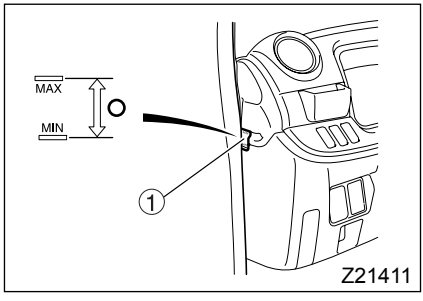
Recommended fluid:
Brake fluid SAE J1703
FMVSS No. 116, DOT3

⚠ WARNING

- **Be sure to use the recommended brake fluid.**
- **Use only one brand of recommended brake fluid. Mixing of different brands or types of fluid will change the properties of the fluid possibly resulting in a lower fluid boiling point and damaged brake components.**
  If you wish to change the brand of brake fluid, replace all the existing fluid in the brake system with the new brand fluid.
- **Never allow engine oil, diesel fuel, gear oil, automatic transmission fluid, or any other mineral oil to mix with the brake fluid. When mixed with the brake fluid even very small in amounts, such oils will cause the rubber parts of the brake system to swell, and could cause brakes to become sluggish or to drag. Also, do not use containers which have been used for mineral oil for brake fluid.**
- **Because brake fluid is highly hygroscopic, it should be kept in a dry place both during refilling and storage. If brake fluid absorbs moisture, the boiling point is lowered, a condition which could result in vapor lock. This is very dangerous.**
  Do not open the reservoir tank cap when checking the brake fluid.
- **If the brake fluid is used over long periods, its boiling point drops significantly due to the moisture it has absorbed, thereby increasing the likelihood of dangerous vapor lock. Therefore, be sure to replace the brake fluid every 50,000 km (30,000 mile) or 24 months, whichever is sooner.**

⚠ CAUTION

Brake fluid dissolves paint. If you spill the fluid, wipe it clean or flush it off with water.
If not cleaned off, brake fluid can cause discoloration, corrosion, or cracks in the paintwork.



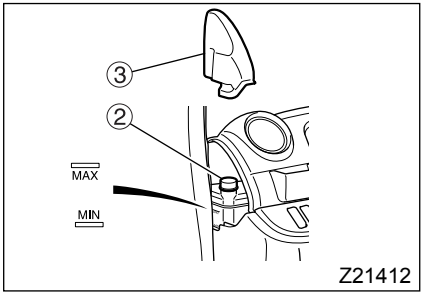
6.1 Check

The fluid level should be between the "MAX" and "MIN" lines on reservoir tank ①. Check whether the reservoir tank contains foreign matter. If you see foreign matter in the reservoir tank, have the reservoir tank inspected and cleaned by an authorized dealer.

NOTE:
The BRAKE *warning lamp is illuminated when the brake fluid level drops below the "MIN" line.*

⚠ CAUTION

Do not open cap ② of reservoir tank for inspection purposes.



6.2 Adding fluid

1. If the fluid level is lower than the "MIN" line, remove cover ③, clean the surfaces around cap of reservoir tank, open cap ②, and add the recommended brake fluid up to the "MAX" line.
2. Close the cap firmly.

⚠ WARNING

- **The container used for adding brake fluid should be a clean one free of moisture, mineral oil, and dust.**
- **Be extremely careful not to let dust and other foreign matter enter the reservoir tank, as foreign matter in the tank could cause a failure of the brake system.**
  If you see foreign matter in the reservoir tank, have it checked and cleaned by an authorized dealer.
- **If the fluid level is unusually low, there is a fluid leak in the brake line. In this case, have your vehicle inspected at an authorized dealer.**

⚠ CAUTION

Be careful not to exceed the "MAX" line when adding brake fluid.

7 Power steering fluid

Replacement intervals	Every 30,000 km (18,000 miles) or every 12 months

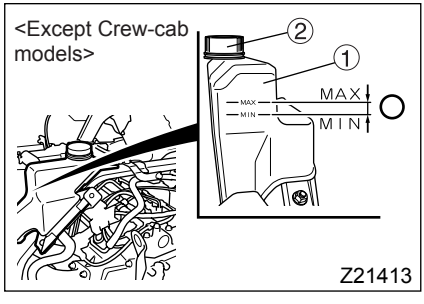
Have an authorized dealer replace the fluid.

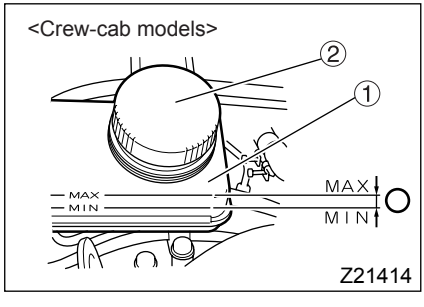
Recommended fluid:
Automatic transmission fluid
DEXRON II or DEXRON III type

⚠ CAUTION

When adding power steering fluid, be sure to use fluid of the same brand as the existing fluid. Mixing two or more different fluids will change their properties and could cause a failure.

NOTE:
Inspect the power steering fluid level after stopping the engine and allowing the power steering fluid to cool. Increases in the fluid temperature cause increases in the fluid level, so an accurate inspection of the level is not possible unless the fluid is cold.





7.1 Inspecting and adding fluid

1. Make sure the parking brake is securely applied.
2. Place the gearshift lever in the “P” position.
3. With the vehicle parked on level ground, place the front wheels in the straight-ahead position and stop the engine.
4. Apply chocks to the wheels and make sure the vehicle does not move.
5. Tilt the cab. ⇨ P. 12-6
   If the vehicle is a Crew-cab model, uncover the opening for inspecting power steering fluid and engine coolant. ⇨ P. 12-4
6. Observe the power steering fluid level in the reservoir tank ①.
7. If the fluid level is between the “MAX” and “MIN” lines, it is acceptable. Also, check whether the power steering fluid is dirty. If it is dirty, have it replaced by an authorized dealer.

8. If the fluid level is below the “MIN” line, clean the reservoir tank’s cap ② and the surrounding area then open the cap and add power steering fluid until it reaches the “MAX” line.
9. Securely fit the cap.

⚠ CAUTION

- **Use a clean container when adding the power steering fluid. Never use a container that has held any other types of oil or fluid. Foreign matter in the fluid could result in a failure.**
- **Avoid adding more fluid than specified.**
- **Insufficient oil can make the steering heavy or noisy and can damage power steering components.**

⚠ WARNING

- **Close the tank cap firmly; otherwise power steering fluid will leak and could catch fire. Also wipe clean spilt fluid.**
- **If the power steering fluid level becomes abnormally low, fluid may be leaking. Have the steering system inspected by an authorized dealer.**

Filter elements

1 Oil filter replacement

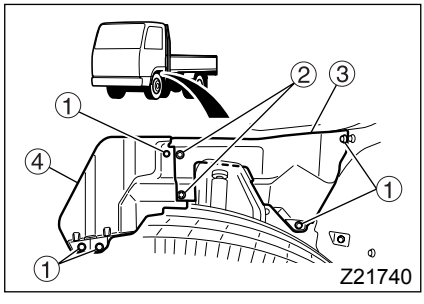
Replacement intervals	Every 30,000 km (18,000 miles) or every 12 months

⚠ CAUTION

- **Oil filter element must not be cleaned and reused. Always replace the filter element with a new one.**
- **Replace the oil filter element simultaneously with engine oil change.**
- **When installing the filter case, be careful not to let the O-ring twist and be damaged.**

⚠ WARNING

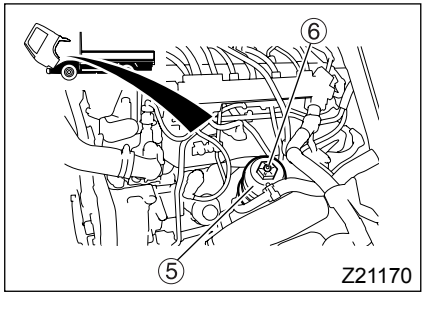
- **Spilt engine oil should be wiped off clean. Oil remaining on the engine surface could catch fire.**
- **Do not replace the oil filter immediately after operating the vehicle since the engine, transmission, exhaust pipe, engine oil, and other items will be extremely hot. If you try to replace the oil filter immediately after driving the vehicle, you may be scalded. Give the engine time to cool before starting the job.**

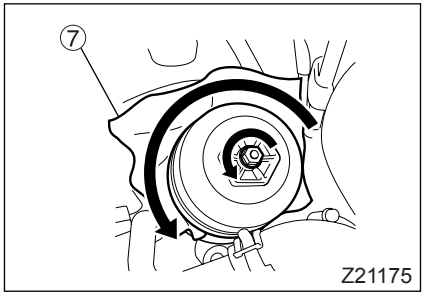


1. If the engine is cold, warm it up until the engine oil temperature reaches approximately 40°C (104°F). (It takes approximately 20 minutes of idling to raise the engine oil temperature from 0°C to 40°C (32°F to 104°F).)

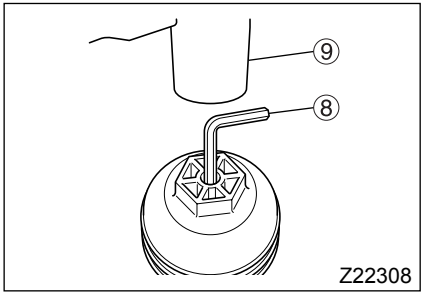
NOTE:
Be sure to warm up the engine. Unless you warm up the engine, engine oil may spill out when you remove the oil filter case.

2. Tilt the cab. ⇨ P. 12-6
   With a Crew-cab model vehicle, remove the screws ① and unfasten the clips ② to remove the rear part ③ of the engine side cover.
   If it is difficult to access the engine inspection opening, remove the front part ④ of the engine side cover.
   Open the engine inspection opening.
3. Clean the area surrounding the oil filter case to prevent dirt from entering the new filter element.
4. Turn the oil filter case ⑤ counterclockwise (about two and a half turns) to loosen it.
5. Remove the air plug ⑥ of the oil filter case by turning it counterclockwise. Replace the removed air plug with a new plug. Wait for at least 5 minutes after removing the air plug to let oil inside the case drain out completely.
   When replacing engine oil, remove the oil filler cap and then the drain plug. ⇨ P. 12-26

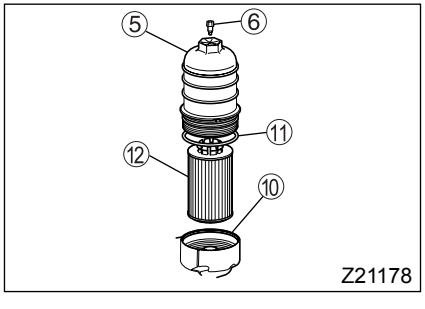




6. Remove the oil filter case by turning it counterclockwise. Use a rag ⑦ to prevent oil from dripping down.



7. Remove the filter element ⑫ from the filter case. If the claw of the filter element is too firmly engaged to remove the element, insert an Allen wrench ⑧ and tap it with a hammer ⑨ to remove the element.



8. Clean the O-ring contact surface of the oil filter support ⑩ and the O-ring groove of the oil filter case.
9. Replace the O-ring ⑪ of the oil filter case with a new one. Apply a light coat of engine oil to the new O-ring before installing it.

⚠ CAUTION

- **Use only the O-ring supplied with a new replacement filter element.**
- **Do not tighten the air plug and filter case beyond the specified torque. The air plug and filter case could be broken if over-tightened.**

10. Replace the filter element ⑫ with a new one; use only a genuine filter element.
11. Install the new filter element with its holed end facing down. Insert the holed end of the filter element snugly into the groove inside the oil filter support.
12. Install the air plug to the oil filter case.
    Use a new air bleeder plug provided with a new element.

Tightening torque	1.5 ± 0.6 N·m (1.1 ± 0.4 ft.lbs., 0.15 ± 0.06 kgf·m)

If the engine oil is replaced, add the necessary quantity of engine oil. ⇨ P. 12-26

13. Tighten the oil filter case.

Tightening torque	25 to 30 N·m (18.4 to 22.1 ft.lbs., 2.5 to 3.0 kgf·m)

14. After cranking the engine according to the instructions on page 5-8, start the engine.
15. Start the engine and check for oil leakage.
16. Stop the engine and, after letting it stand for more than 10 minutes, check the oil level.

2 Fuel filter replacement

Replacement intervals	Every 30,000 km (18,000 miles) or every 12 months

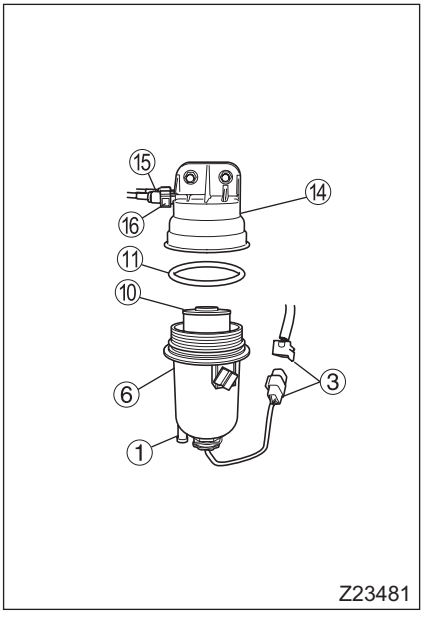
⚠ WARNING

- **Fuel is highly flammable and should be kept away from hot objects and open flames owing to the risk of fire or explosion. Wipe up any spilt fuel.**
- **After installing the fuel filter, confirm that no fuel is leaking out. Leaking fuel could cause a fire or explosion.**
- **Use only the fuel filter specified for your vehicle. Use of other filters could cause fuel to leak and cause a fire or explosion.**
- **When replacing the fuel filter element, be sure to use the special tool to remove and reinstall the fuel filter. If the fuel filter is reinstalled inappropriately, fuel could leak and the filter itself could become damaged, possibly resulting in a fire and/or explosion. If you do not have the special tool, please contact an authorized dealer.**
- **Be careful not to damage the filter case, as this could cause fuel leakage.**
- **Keep cigarettes and other sources of heat away from the vehicle while replacing the fuel filter. They are dangerous because they could set fire to the fuel.**
- **When replacing the fuel filter, you will be working in a tight space. Be careful not to injure yourself on the edges of nearby components.**

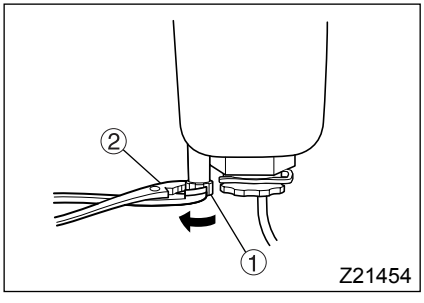
⚠ CAUTION

- **Fuel filter element must not be cleaned and reused.**
- **Always replace with a new, genuine fuel filter element. Do not use the filter element beyond the recommended replacement intervals. Failure to observe these may damage the fuel injection parts.**

NOTE:
The fuel filter is located in the left wheel base.

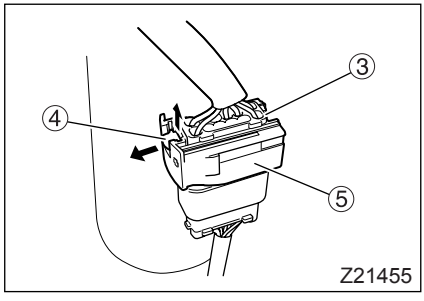


1. Make sure that the parking brake is firmly applied.
2. Chock the wheels.
3. Clean the area around the filter to prevent dirt from contaminating the new filter element when it is installed later.
4. Place a container under the fuel filter to collect the fuel.
5. Disconnect the two fuel tubes. While pressing the lock button ⑯ at the connector section ⑮, pull off the tube. Apply a shop towel around the connector as some fuel will gush out when pulling the tube off.

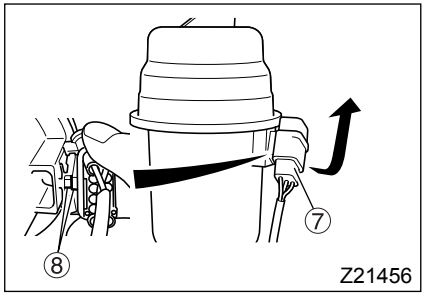


6. Loosen the drain plug ① by turning it in the direction of the arrow indicated in the figure to allow the fuel in the fuel filter to drain out. Use pliers ② or a similar tool to loosen the plug. After the fuel has been discharged, turn the plug in the opposite direction of the arrow.

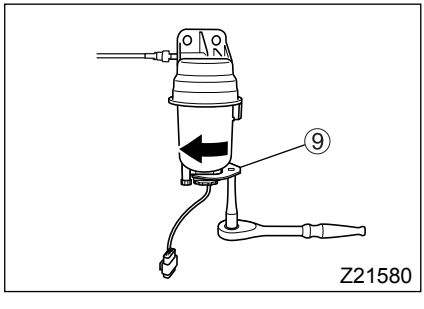
Tightening torque	1.5 N·m (1.1 ft.lbs., 0.15 kgf·m)



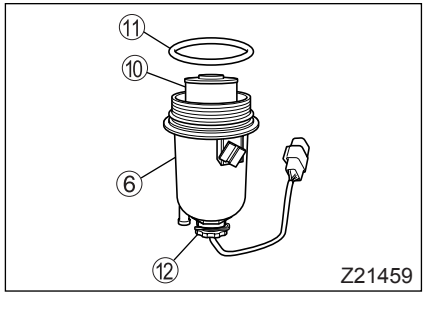
7. Disconnect the sensor connector ③. Do this after pulling up the connector's lock knob ④ and then pulling out the top part ⑤ of the connector.



8. Disconnect the connector ⑦ from the fuel filter case. Do this by pulling the bottom part of the connector toward you to release the lock ⑧ and then pulling the connector directly upward.



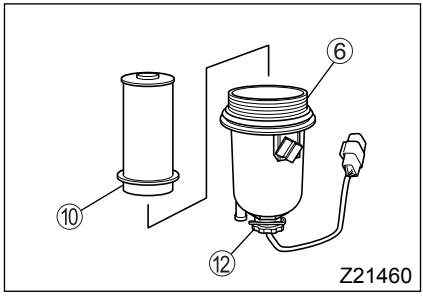
9. Remove the fuel filter case by turning it counter-clockwise using the special tool ⑨ (separately available). Let the fuel inside the case drain out.



10. Remove the filter element out of the case by pulling it straight upward.
11. Replace the O-ring ⑪ of the fuel filter case ⑥ with a new one. After applying a light coat of engine oil to the new O-ring, install it on the fuel filter case.

⚠ CAUTION

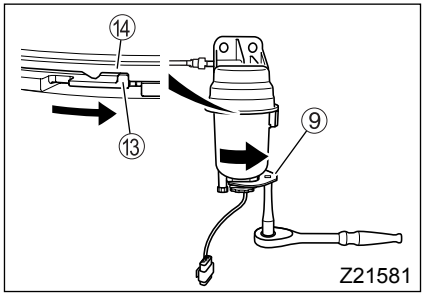
- **Remove and install the filter element ⑩ in parallel with the axis of the filter case. Otherwise, the sensor ⑫ inside the case could become damaged.**
- **Use only the O-ring supplied with a new replacement filter element.**



12. Install a new, genuine filter element into the filter case as shown in the illustration, paying attention to its direction.
    Insert the filter element in a straight line.

⚠ CAUTION

Do not reuse the filter element.



13. Install the fuel filter case by turning it clockwise. Turn the case until it stops. Make sure the projection ⑬ on the case is in contact with the filter head ⑭.

⚠ CAUTION

- **Install the fuel filter case carefully so as not to twist or damage the O-ring.**
- **Always check that the fuel filter is in contact with the filter head. If they are not in contact with each other, the fuel filter case must have been turned insufficiently or excessively. In either case, fuel will leak or the fuel filter case will be damaged.**

14. Install the sensor connector to the fuel filter case and then connect the connector. Do this by following the removal procedure in reverse.
15. Connect the connector ⑮ of the fuel tube to the fuel filter. Insert the connector deep into the fuel filter, and insert a little further after a click is heard.
16. After connecting, hold the connector and move it slightly forward and backward to confirm that the connector is locked securely.
17. Bleed air from the fuel system as follows:
    Hold the starter switch in the “ON” position for 30 seconds and then set it to the “ACC” position to supply fuel to the fuel system.
18. Start the engine and check that there is no fuel leakage.

NOTE:
Air enters the fuel system while replacing the filter element and will prevent the engine from starting. Before starting the engine after replacing the filter element, bleed air from the fuel system.

3 Air cleaner element cleaning and replacement

Replacement intervals	Every 30,000 km (18,000 miles) or every 12 months

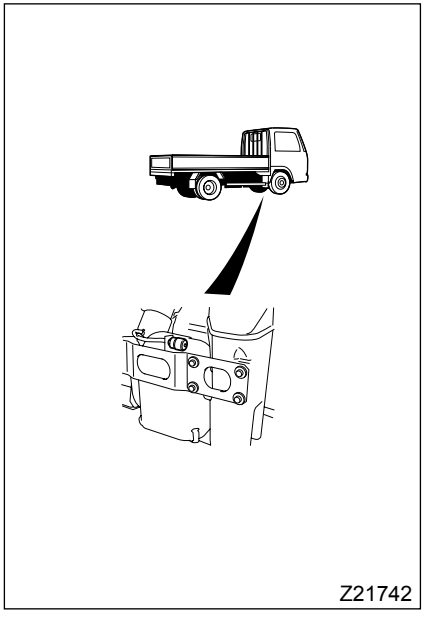
⚠ WARNING

When cleaning air cleaner element, wear goggles and a mask to protect your eyes and respiratory organs from dust.
And, use a dust collector to prevent dust from dispersing into the surroundings.

⚠ CAUTION

Clean the air cleaner element at the specified interval. Failure to follow this instruction will result in premature accumulation of PM in the DPF and eventually cause the systems to malfunction. On the contrary, unnecessarily frequent cleaning can damage the air cleaner element, allowing dust and other foreign matter to be drawn into the engine.

NOTE:
Even if the cleaning interval has not elapsed, clean or replace the element if clogging of the element causes a decrease in engine output.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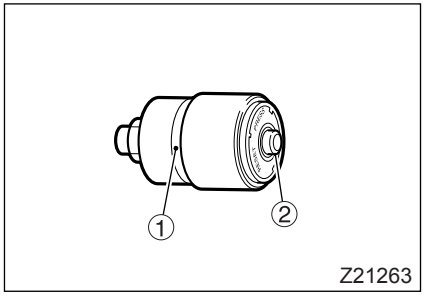
- **Checking the air cleaner element condition with dust indicator**
  Check the dust indicator once a week. If the indicator's window ① shows a red signal, the air cleaner element is clogged. Clean the element immediately.

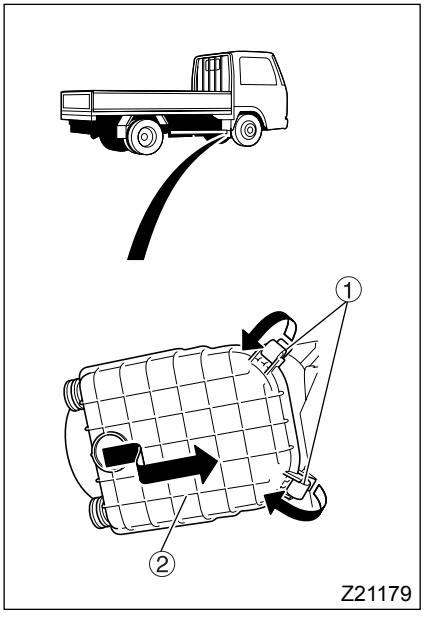


- **Resetting the dust indicator**
  After cleaning the air cleaner element, push the reset button ②. The red signal will disappear from the window of the dust indicator.

The air cleaner is located in the illustrated position.

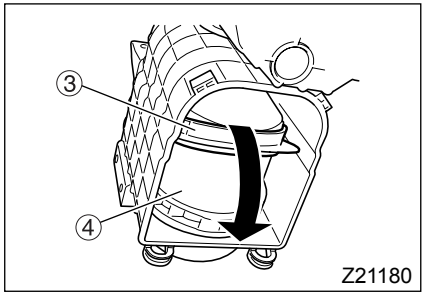
⚠ CAUTION

When removing and reinstalling the cover, wear thick gloves not to hurt yourself on the edges of nearby parts.

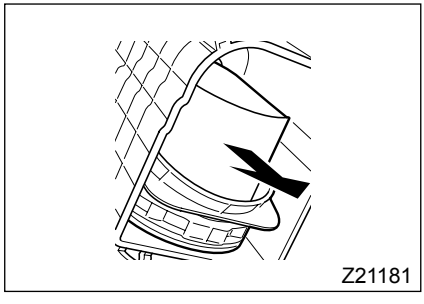


- **Removal**

1. Undo the two clamps ① and then pull the cover ② toward the clamps to remove it.



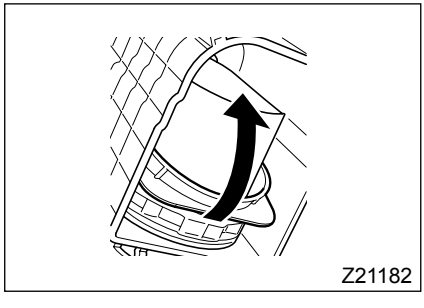
2. Move the lock lever ③ in the air cleaner element case to the “UNLOCK” position.

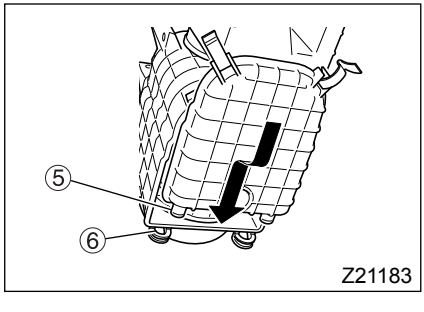


3. Pull element ④ straight down to remove.

- **Installation**

1. Insert the air cleaner element into the air cleaner element case in a straight line.
2. Move the lock lever in the air cleaner element case to the “LOCK” position.

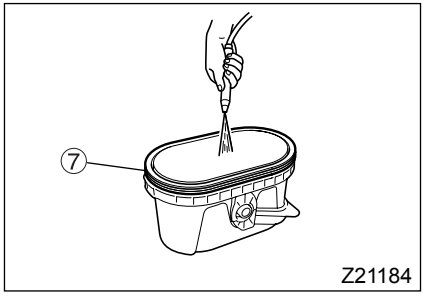




3. Install the cover on the case by inserting the projections ⑤ on the cover into the holes ⑥ in the case and then fasten the clamps.

⚠ CAUTION

Install the air cleaner element in the case and close the case completely. A broken packing or loose fastening of the clamps will cause dust or other foreign material to be sucked in by the engine, causing the pistons and cylinder liners to become worn prematurely.

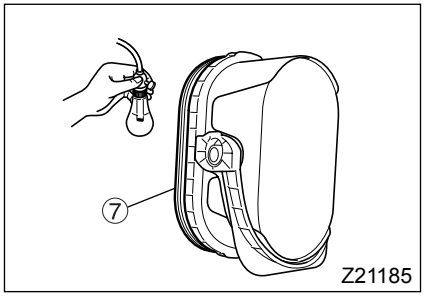


- **Inspection and cleaning**

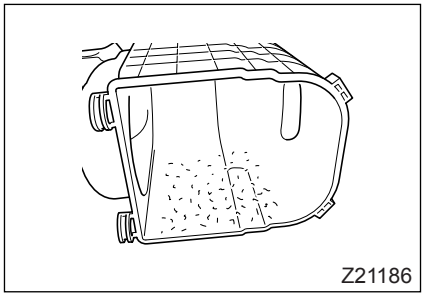
1. Remove dust by blowing compressed air over every surface of the air cleaner element from its end fitted with the gasket ⑦.

⚠ CAUTION

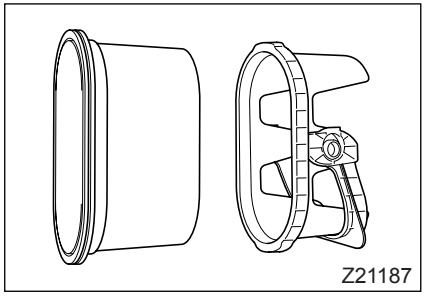
- **Dust can damage your health. Wear a dust mask to avoid inhaling dust while cleaning the air cleaner element. Also, wear thick gloves while removing and installing the cover.**
- **Keep the air pressure under 685 kPa (100 psi, 7 kgf/cm^2) to prevent the element from being damaged.**
- **Do not strike the element or hit it against another object.**
- **If the element is contaminated with oily soot or dust, replace it regardless of the scheduled replacement time.**



2. Put a light on the gasket side of the air cleaner element to check that there are no holes that allow light to leak in the element. Also check the gasket for cracks or other damage.



3. Clean the inside of the case and cover with a clean cloth. Clean the sealing sections with particular care.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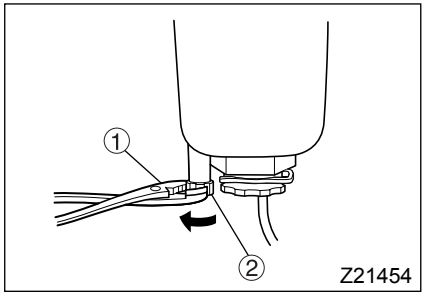
4. Replace the element with a new one if the check reveals a defective cleaner element or when the recommended replacement interval expires.
   Use a genuine cleaner element for replacement.
   Remove the air cleaner element from the case and replace it with a new one.



Z21454

Draining water from fuel filter

If the WATER SEPR warning is indicated, there is water in the fuel filter in an amount exceeding the limit.
Drain the water as follows:

⚠ WARNING

- **Fuel is highly flammable and should be kept away from hot objects and open flames owing to the risk of fire or explosion. Wipe up any spilt fuel.**
- **Keep cigarettes and other sources of heat away from the vehicle while draining water from the fuel filter. They are dangerous because they could set fire to the fuel.**
- **Be careful not to injure yourself on the edges of nearby components while draining water from the fuel filter.**
- **Avoid damaging the fuel filter case, as this will cause fuel to leak.**
- **Do not drain water from the fuel filter immediately after driving the vehicle. The fuel filter is extremely hot immediately after the vehicle has been driven, so you could get burned. Give the fuel filter time to cool down before draining water from it.**

1. Make sure that the parking brake is firmly applied.
2. Chock the wheels.
3. Prepare a receiver for water.
4. Using pliers ① or other suitable tool, slightly turn the fuel filter's drain plug ② counterclockwise to let water inside the filter drain out.

5. If only fuel starts flowing out, tighten the drain plug by turning it clockwise.

Tightening torque	1.5 N·m (1.1 ft.lbs., 0.15 kgf·m)

6. Bleed the fuel system. ⇨ P. 13-31
7. Start the engine and check that fuel does not leak.

⚠ WARNING

- **The drain contains not only water but also fuel.**
  Be sure to wipe clean the surfaces around the fuel filter to remove all splashed fuel. Fuel remaining on the surfaces could cause a fire.
- **Make sure fuel does not leak from the filter or from related parts. Any fuel leakage could cause a fire.**

Engine coolant – check and replacement

Inspection intervals	At the time of pre-operational check
Replacement intervals	Every 24 months

If the coolant becomes very dirty, replace it immediately regardless of the specified replacement intervals.

⚠ CAUTION

- **Continuing to use the coolant after the specified replacement period could damage the engine and cooling system components due to rusting and other problems. Replace the coolant at the specified replacement period intervals.**
- **When replacing or adding coolant, be sure to use FUSO DIESEL LONGLIFE COOLANT or an equivalent. Using any coolant other than FUSO DIESEL LONGLIFE COOLANT or an equivalent could cause corrosion and damage to the radiator.**

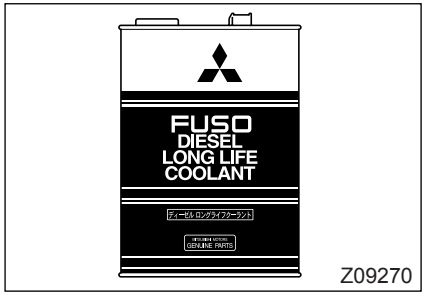
1 Recommended coolant

Use a coolant containing the FUSO DIESEL LONGLIFE COOLANT additive and soft water in the specified proportions.
Having both corrosion preventive and anti-freezing properties, the additive protects the cooling system all year around.
Replace and top off the coolant only with water containing FUSO DIESEL LONGLIFE COOLANT or an equivalent.

2 Water used with coolant

Use soft water with the properties shown in the following table. Do no use hard water from wells and rivers as it is liable to form scales and cause corrosion.

Total hardness	300 ppm or less
Sulfate SO_4^{-}	100 ppm or less
Chloride Cl^{-}	100 ppm or less
Total dissolved solids	500 ppm or less
pH	6 to 8



3 Using coolant additive

To prevent the cooling system freezing up and minimize corrosion, use FUSO DIESEL LONGLIFE COOLANT or an equivalent. FUSO DIESEL LONGLIFE COOLANT is an ethylene-glycol-based antifreeze (SAE J814-C) with both anti-freeze and anti-corrosion properties. Dilute it with soft water to the specified concentration.

⚠ DANGER

- **FUSO DIESEL LONGLIFE COOLANT IS TOXIC. IF A PERSON HAS ACCIDENTALLY SWALLOWED IT, FORCE HIM/HER TO VOMIT AND CONSULT A DOCTOR IMMEDIATELY. IF IT SPLASHES IN THE EYES, IMMEDIATELY FLUSH THE EYES WITH WATER FOR MORE THAN 15 MINUTES, AND SEEK MEDICAL ATTENTION.**
- **SHOULD FUSO DIESEL LONGLIFE COOLANT COME IN CONTACT WITH YOUR SKIN, IMMEDIATELY WIPE IT OFF, AND THEN THOROUGHLY WASH YOUR SKIN WITH LOTS OF CLEAN WATER AND SOAP. IF YOU FEEL UNWELL OR PAIN ON YOUR SKIN, IMMEDIATELY SEEK MEDICAL ATTENTION.**
  IN THE EVENT OF CONTACT WITH YOUR CLOTHES, IMMEDIATELY FLUSH FUSO LONGLIFE COOLANT WITH WATER AND SOAP.
- **DO NOT USE FUSO DIESEL LONGLIFE COOLANT IN A CLOSED OR POORLY VENTILATED SPACE. SHOULD YOU INHALE A LARGE AMOUNT OF GAS OF FUSO DIESEL LONGLIFE COOLANT, MOVE TO A PLACE WITH FRESH AIR AND KEEP YOURSELF WARM AND AT REST. IF YOU FEEL NAUSEOUS OR OTHERWISE ABNORMAL, IMMEDIATELY SEEK MEDICAL ATTENTION.**
- **CLOSE THE CAP OF THE FUSO DIESEL LONGLIFE COOLANT CONTAINER IMMEDIATELY AFTER USING THE PRODUCT.**
- **DO NOT STORE FUSO DIESEL LONGLIFE COOLANT WHERE CHILDREN COULD REACH AND ACCIDENTALLY DRINK IT.**
- **FUSO DIESEL LONGLIFE COOLANT IS FLAMMABLE; AVOID EXPOSING IT TO OPEN FLAME.**
- **WHEN HANDLING FUSO DIESEL LONGLIFE COOLANT, WEAR AN ORGANIC GAS MASK, PROTECTION GOGGLES, OIL-RESISTANT GLOVES, AND/OR PROTECTIVE APRON AS NECESSARY.**

⚠ CAUTION

Do not use methanol-based or methoxypropanol-based antifreeze products. They can severely damage the engine.
Never mix FUSO DIESEL LONGLIFE COOLANT with other brands of long-life coolant or any antifreeze or corrosion-preventive additives. Doing so would reduce the performance of the coolant. If a different long-life coolant has been used and the FUSO DIESEL LONGLIFE COOLANT is to be used, be sure to thoroughly flush the cooling system.

Use the following table to determine the correct concentration of FUSO DIESEL LONGLIFE COOLANT according to the lowest temperature at which your vehicle is to be operated.

FUSO DIESEL LONGLIFE COOLANT concentration (in volume percentage)

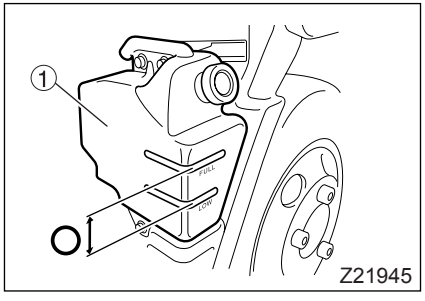
Lowest temperature °C (°F)	–10 (14) or higher	–15 (5)	–20 (–4)	–25 (–13)	–30 (–22)	–35 (–31)	–40 (–40)
Concentration (%)	50	50	50	50	50	55	60

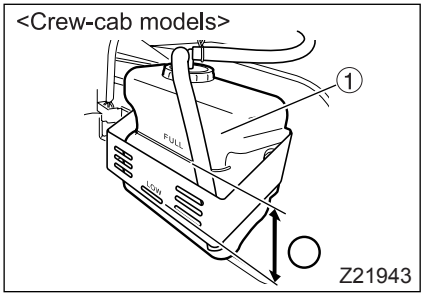
Coolant quantity	
Vehicles other than those specified below	Approx. 14 liters (14.8 qts)
Crew cab (with rear air conditioner)	Approx. 15.1 liters (16 qts)
Crew cab (with rear heater)	Approx. 15.2 liters (16.1 qts)

NOTE:
Vehicles are shipped with a 50% concentration of FUSO DIESEL LONGLIFE COOLANT and can therefore be used at temperatures down to –30°C (–22°F).

⚠ CAUTION

Use FUSO DIESEL LONGLIFE COOLANT at a concentration of between 50% and 60%. The proper concentration under normal temperatures is 50%. At a concentration below 30%, this additive performs poorly as an anticorrosive, while at a concentration exceeding 60%, it performs poorly as an antifreeze.





4 Check

NOTE:

- *Always check the coolant level before starting the engine when the coolant temperature is low. When the coolant gets hot, it expands, making the level look higher than it actually is.*
- *Deposition may occur in the reserve tank but this will not cause any problem.*

- The coolant level is sufficient if it is between the "FULL" and "LOW" marks on the coolant reservoir tank ①.
- If the coolant level is below the "LOW" line, make sure coolant is not leaking from the cooling system then add coolant until it reaches the "FULL" line.
- Check for coolant leakage from the radiator and radiator hoses.
  If you find water on the ground from which your vehicle has been moved after parking, coolant is probably leaking.
- If the coolant level is abnormally low and quickly drops again when coolant has been added, coolant may be leaking from the cooling system. Have the vehicle inspected by your nearest authorized dealer.

5 Adding coolant

⚠ CAUTION

- **Coolant should normally be added through the reservoir tank without opening the pressure cap on the surge tank.**
- **When adding coolant, use new coolant additive of the same brand and concentration as the additive that is already in the vehicle.**
- **Adding only water reduces the concentration of the coolant already in the system, resulting in less protection against freezing and corrosion. Additional coolant should always contain the correct proportions of the additive and soft water.**

5.1 Adding coolant during pre-operation checks

1. If the coolant level is below the “LOW” mark, remove the cap from the reservoir tank, and refill the tank with a mixture of FUSO DIESEL LONGLIFE COOLANT and soft water to the “FULL” mark.
2. Refit the cap securely after adding coolant.

5.2 Adding coolant following an engine overheat

If the engine overheats, the amount of coolant may be insufficient not only in the reservoir tank but also in the main body of the radiator.
Refer to “If the engine overheats” with regard to the filling of coolant in situations where the engine has overheated. ⇨ P. 13-8

⚠ WARNING

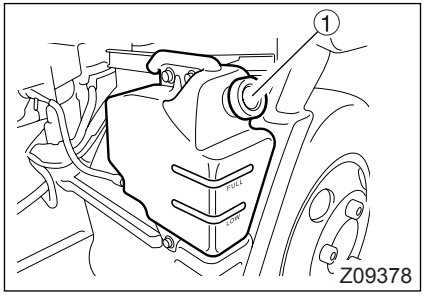
Never remove the pressure cap while the coolant is still hot. Carelessly removing it is dangerous since boiling coolant and hot steam will gush out and could scald you. Only after the coolant has cooled down sufficiently, remove the pressure cap by gripping it in a folded piece of thick cloth and opening it slowly.

6 Replacement

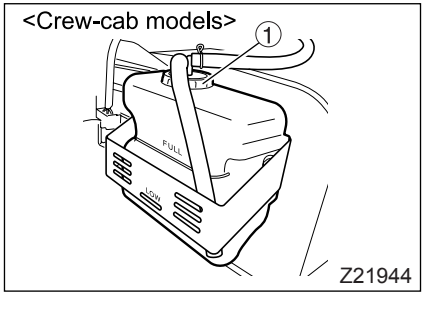
Be sure to flush the cooling system when replacing the coolant.

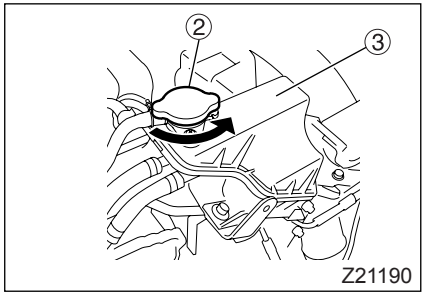
⚠ WARNING

- **Do not replace the coolant immediately after operating the vehicle since the engine, radiator, coolant, and other items will be extremely hot. If you try to drain the coolant immediately after driving the vehicle, you may be scalded. Give the coolant time to cool before starting the job.**
- **Never remove the pressure cap while the coolant is still hot. Carelessly removing it is dangerous since boiling coolant and hot steam will gush out and could scald you. Only after the coolant has cooled down sufficiently, remove the pressure cap by gripping it in a folded piece of thick cloth and opening it slowly.**
- **Tighten the pressure cap before operating the engine. If the engine speed is increased with the pressure cap left open, the coolant will overflow from the pressure cap opening as its temperature rises.**

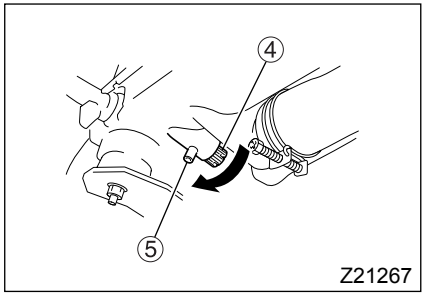


1. Place a can under the radiator drain cock to receive engine coolant.
2. Remove the cap ① from the reservoir tank.
3. Tilt the cab. ⇨ P. 12-6
   If the vehicle is a Crew-cab model vehicle, uncover the engine coolant inspection opening. ⇨ P. 12-5





4. Remove the pressure cap ② of the surge tank ③ by turning it counterclockwise.



5. Open the radiator drain cock ④ to drain engine coolant.

NOTE:
You can prevent splashes from draining engine coolant by connecting a hose (commercially available with a 7 mm (0.28 in.) inside diameter) to the drain cock nipple ⑤.

6. After the coolant has been completely drained, close radiator drain cock.

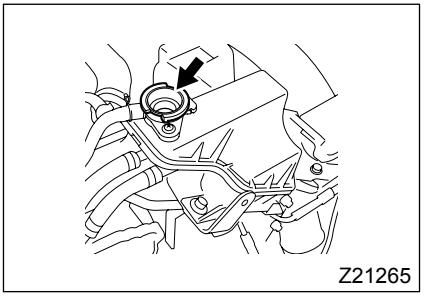
Tightening torque	2.5 ± 0.5 N·m (1.8 ± 0.4 ft.lbs., 0.25 ± 0.05 kgf·m)

7. Flush the cooling system.
   Pour soft water (preferably after heating moderately) through the pressure cap opening. Refit the pressure cap tightly by turning it clockwise. Lower the cab.
   Start and run the engine until the coolant temperature indicator on the multi-information display shows the 8th segment on the scale. Stop the engine after 10 minutes and then drain out the engine coolant. Take great care as the coolant is very hot.
   Repeat the above procedure until the water is free of dirt.
   For details on handling the multi-information display, refer to page 6-8.

⚠ CAUTION

If the radiator tubing is clogged or coolant is more contaminated than usual, have your vehicle inspected at an authorized dealer.

8. Make sure the radiator drain cock is securely fitted.


Z21265

9. Tilt the cab. If the vehicle is a Crew-cab model vehicle, uncover the engine coolant inspection opening.
10. Pour coolant (FUSO DIESEL LONGLIFE COOLANT plus soft water) up to the top of the pressure cap opening. Pour the coolant slowly to prevent air from mixing with it.

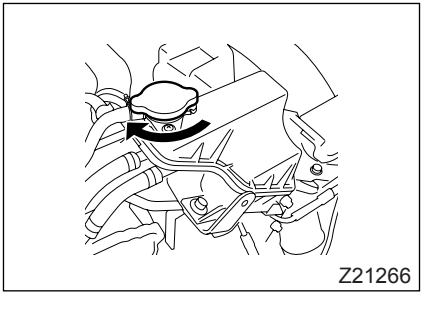
NOTE:
When refilling the radiator on a Crew-cab model vehicle, pour coolant slowly to prevent it from overflowing the filler port.

11. Check that the coolant level in the pressure cap opening does not go down, then fit the pressure cap (turn it clockwise until it is tight).

⚠ CAUTION

If air is not completely removed from the cooling system, this may lead to reduced cooling efficiency and engine parts failure. After replacing the coolant, drive the vehicle and then check the coolant level.

12. Lower the cab.
13. Fill the reservoir tank with the coolant (FUSO DIESEL LONGLIFE COOLANT plus soft water) to the “FULL” line, then replace the cap.
14. Start the engine and keep it running at a speed slightly higher than the specified idling speed to expel air from the cooling system. When the coolant temperature indicator shows the 8th segment on the scale, allow the engine to idle for at least 10 minutes before stopping it.
15. When the engine has cooled, open the pressure cap and, if the coolant level is too low, add coolant until it reaches the top of the pressure cap opening.
16. Screw the pressure cap down tightly by turning it clockwise.


Z21266

NOTE:
Be sure to screw the pressure cap tightly. Otherwise, boiling water and steam under high pressure will gush out if the engine overheats.

17. Run the engine a few more minutes to make sure that there are no coolant leaks.
18. Make sure that the coolant level in the reservoir tank is in the specified range. Add coolant if necessary.

7 Cleaning the intercooler and radiator core

If the front of the intercooler or radiator gets clogged with dirt or dust, cooling efficiency will decrease. It could also be a cause of rust. Clean the intercooler and radiator at regular intervals. ⇨ P. 12-95

V-belts – check and adjustment

The belt is kept adjusted to the appropriate tension by the auto-tensioner, so you do not need to adjust the belt tension. However, you should check the auto-tensioner is working properly.

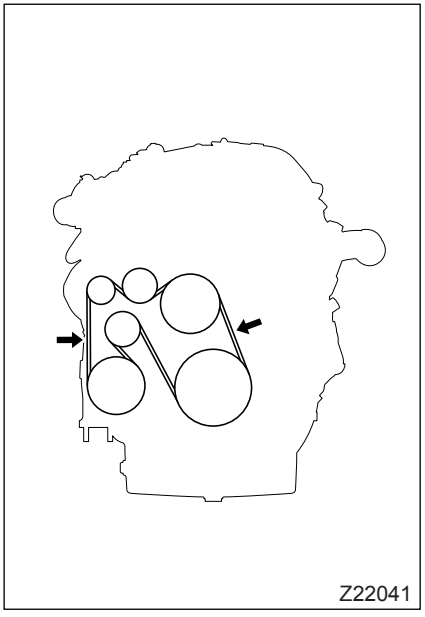
⚠ WARNING

Always stop the engine before inspecting or adjusting belts.
Ensure that the engine cannot be started while you are performing checks or adjustments.

⚠ CAUTION

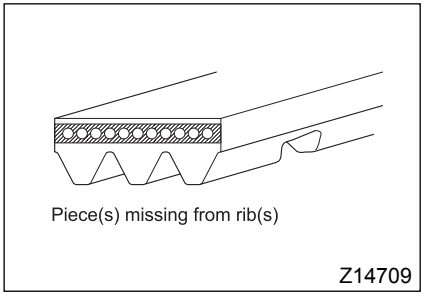
- **If the belt is found to be damaged, have it replaced by an authorized dealer as soon as possible. The engine could fail if the belt breaks.**
- **Prevent the V-belt from any contact with oil or grease during inspection.**
  If soiled with oil or grease, the belts will slip and this will shorten their service life.

Inspection	At the time of pre-operational check and every 30,000 km (18,000 miles) or 12 months
Replacement	Every 120,000 km (75,000 miles) or every 24 months


Z22041

1 Check

1. Confirm that the parking brake lever is pulled. Prevent the vehicle from moving by blocking the wheels with chocks. Tilt the cab. ⇨ P. 12-6
   If the vehicle is a Crew-cab model, uncover the engine access opening under the assistant driver's seat. ⇨ P. 12-4
2. Check whether the V-belt is properly tensioned by pressing it with your palm in either of the places marked with arrows.
3. If the belt is excessively loose, have the vehicle inspected by an authorized dealer.
4. Also, check the belts for damage.


Piece(s) missing from rib(s)

Z14709

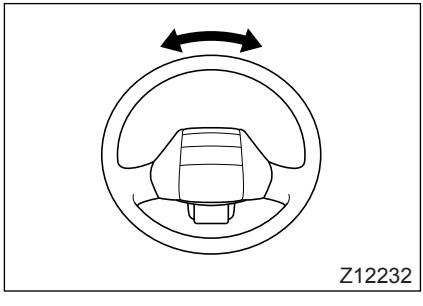
If a belt is cracked or otherwise damaged, have it replaced it as soon as possible. Belt replacement requires component disassembly. Please contact an authorized dealer to have the work done.

Steering wheel – check

The steering wheel is a safety-critical part of the vehicle. If an inspection reveals any abnormality, contact an authorized dealer and have the abnormality rectified before you again drive the vehicle. Driving the vehicle with the abnormality unrectified could result in a serious accident.

⚠ WARNING

Perform the checks in a safe place that provides good visibility all around. During the checks, be sufficiently attentive to surrounding traffic conditions.


Z12232

1 Steering wheel play

Inspection intervals	At the time of pre-operational check and every 30,000 km (18,000 miles) or 12 months

NOTE:
Be sure to check the steering wheel play both with the engine running and with the engine turned off.

1. Make sure the parking brake is securely applied.
2. Make sure that the gearshift lever is in the “P” position.
3. Gently turn the steering wheel from its straight-ahead (neutral) position to the point where you first feel resistance in the clockwise direction and to the point where you first feel resistance in the counterclockwise direction. The distance between the two points is the extent of steering wheel play.
   Check the steering wheel play both with the engine running and with the engine turned off. If it is out of specification either with the engine running or with the engine turned off, contact your nearest authorized dealer.

Steering wheel play (on the periphery of steering wheel)	When engine is turned off	10 to 20 mm (0.39 to 0.79 in.)
	When engine is idling	5 to 50 mm (0.20 to 1.97 in.)

2 Steering wheel looseness

Inspection intervals	Every 30,000 km (18,000 miles) or every 12 months

1. Try moving steering wheel up and down and also right and left to check for excessive looseness.
2. If anything abnormal is found, contact an authorized dealer.

NOTE:
Make sure the lock lever that is used for steering wheel adjustment is securely locked.

3 Steering wheel operation

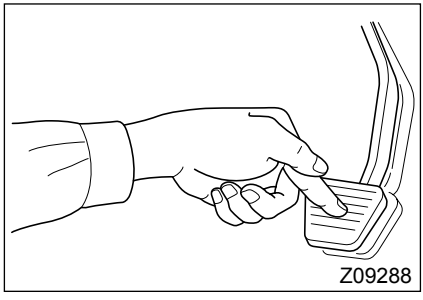
Inspection intervals	At the time of pre-operational check and every 30,000 km (18,000 miles) or 12 months

1. While driving slowly, make sure that the steering wheel does not shake and the vehicle does not pull to one side. Also check for excessive operating resistance and unsmooth return to the neutral position.
2. If any abnormal condition is encountered during the above check, call an authorized dealer for inspection.

Service brakes – check

The service brakes are safety-critical parts of the vehicle. If an inspection reveals any abnormality, contact an authorized dealer and have the abnormality rectified before you again drive the vehicle. Driving the vehicle with the abnormality unrectified could result in a serious accident.

Inspection intervals	At the time of pre-operational check

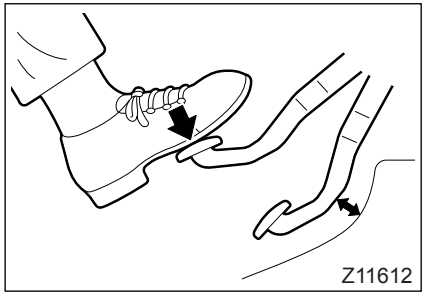


1 Brake pedal play

1. With the engine stopped, turn the starter switch to the “ON” position.
2. Make sure that the gearshift lever is in the “P” position.
3. Pump the brake pedal several times to release all the vacuum from the brake system (zero vacuum).
4. Measure the distance over which the brake pedal moves when the center of the pedal pad is pressed with light finger force to the point where resistance is felt (brake pedal play). Check whether the distance is within specification.

Brake pedal play (at center of pedal pad)	0.1 to 3 mm (0.0039 to 0.12 in.)

5. If the brake pedal play is not as specified, have the pedal inspected and adjusted by an authorized dealer.



2 Brake pedal stroke

- Start the engine and allow it to idle.
- Fully depress the brake pedal. Check whether the distance between the fully depressed pedal and the floor is within specification.

Fully depressed brake pedal to floor clearance	10 mm (0.39 in.) or more

- If the pedal-to-floor clearance is insufficient or the pedal feels spongy when depressed, brake fluid leakage or presence of air in the brake hydraulic system may be a cause.
  Have the brake system inspected by an authorized dealer if the above conditions are detected.

3 Braking performance

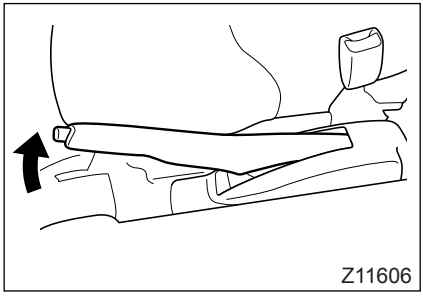
Perform braking tests in a safe place. After checking that warning lamp BRAKE or LOW VACUUM is not illuminated, drive the vehicle at a low speed to make sure that braking power is sufficient and even. If braking seems in any way abnormal, operating the vehicle could be dangerous. Ask an authorized dealer for a more thorough inspection.

⚠ WARNING

Perform brake tests in a safe place that provides good visibility all around. During the tests, be attentive to surrounding traffic conditions.

Parking brake – check and adjustment

Inspection intervals	At the time of pre-operational check



1 Parking brake lever stroke check

1. Depress the brake pedal firmly so that the vehicle cannot move.
2. Starting with the parking brake lever in the fully released position, pull the parking brake lever with a force of 294 N (66 lbs., 30 kgf) until it stops moving. Check whether the lever stroke (the distance moved by the lever) is within specification. If the stroke is out of specification, have the vehicle inspected by an authorized dealer.

Parking brake lever stroke	7 to 9 notches

3. Make sure the parking brake lever locks securely in the pulled position.

2 Braking performance

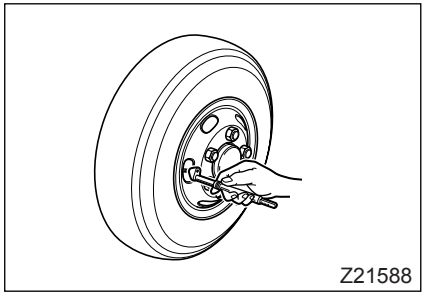
Stop the vehicle on a dry downgrade, set the parking brake and check to see if the parking brake can hold the vehicle. If an appropriate downgrade is not available, drive the vehicle at 8 km/h (5 mph) and activate the parking brake to make sure that it exhibits satisfactory braking action.
If parking brake performance is in any way abnormal, vehicle operation could be dangerous. Contact an authorized dealer.

⚠ WARNING

Perform brake tests in safe place that provides good visibility all around. During the tests, be sufficiently attentive to surrounding traffic conditions.

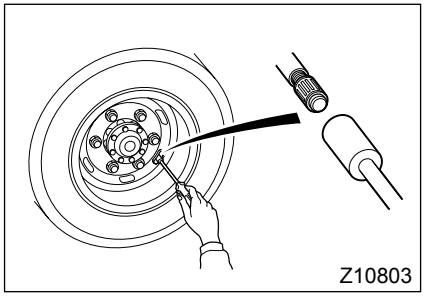
Tires – check

Inspection intervals	At the time of pre-operational check and every 30,000 km (18,000 miles) or 12 months


Z21588

1 Inflation pressure check

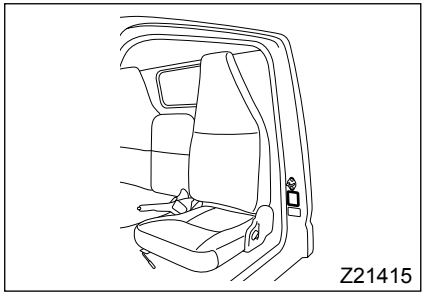
- Use an air pressure gauge to check for proper tire inflation pressure.
  If the pressure is incorrect, adjust it to the indicated standard pressure.


Z10803

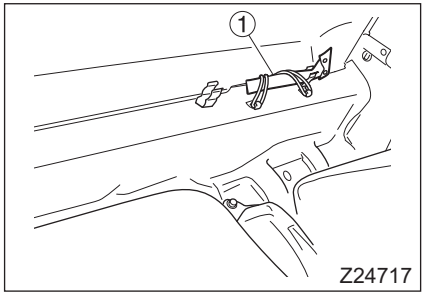
- Tire pressure should be checked and adjusted before driving when the tires are still cool. Make sure that the tire air valve caps are securely fitted. On a vehicle with a tire valve cap tool, make sure to remove or install the tire valve cap located on the inner rear tire using the tire valve cap tool.

Standard inflation pressure

Model	Tire size	Inflation pressure kPa (psi, kgf/cm^2)
FEC5	LT215/85R16-10PR (Load Range E)	550 (80, 5.5)
FEC7 FEC9	215/75R17.5 124/123L (Load Range F)	690 (100, 7.0)
FG	LT235/85R16-10PR (Load Range E)	550 (80, 5.5)


Z21415

- There is a plate affixed to the driver's door pillar indicating standard inflation pressure.



- The tire valve cap tool ① is stowed at the back of the driver's seat.

⚠ WARNING

- **Excessively low or high tire pressures not only give a poor ride but also could cause cargo to be damaged. Under-inflated or over-inflated tires are also very dangerous and can be easily damaged. Moreover, if the pressure is too low, tires could overheat and burst.**
- **Both the inner and outer tires on dual wheels should be inflated to the same pressure.**
- **You need not increase tire pressure before high-speed driving.**
- **Tires should be handled with care due to their high internal air pressure.**

⚠ CAUTION

- **Your vehicle's tires will heat up during use, with a corresponding increase in air pressure. This is normal; do not release air from the tires when they are hot.**
  Always check tire pressures before driving, when the tires are cold.
- **Pay particularly close attention to the air pressure in new tires. New tires tend to stretch slightly as they settle, with a corresponding decrease in air pressure.**
- **Never fail to install tire valve caps after checking or adjusting the air pressure.**
  Unless the valve caps are replaced, foreign matter may interfere with the valves and cause air to leak out.

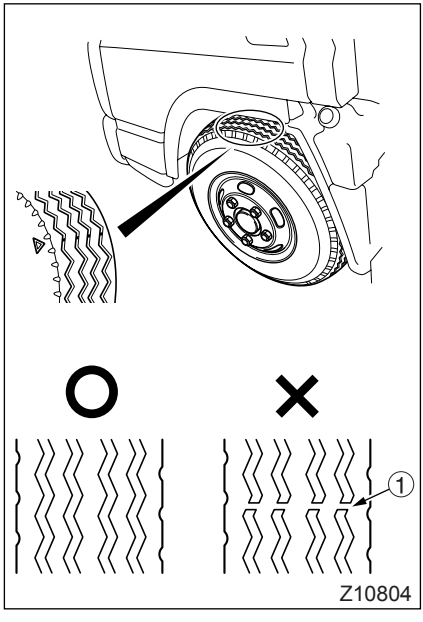
NOTE:

- *The tire inflation pressures will be higher just after vehicle operation than before vehicle operation. The increases in pressure are not abnormal; they occur because the air in the tires expands as the tires get hot while the vehicle is moving. Do not release air from the tires at this time. The pressures will return to normal as the tires cool down.*
- *The pressure drops naturally as time passes. You should therefore check the tire pressure using an air gauge.*

2 Checking tread depth

Check the entire circumference of each tire to make sure that the remaining depth of the tread pattern on the part that contacts the road surface is sufficient.

Tread groove depth limit	1.6 mm (0.06 in.)



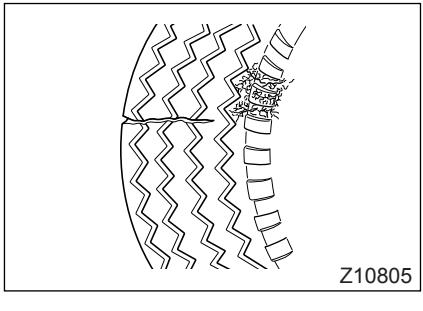
When the tread wears down, wear indicators ① (interrupted sections of the grooves) appear across the tire at the locations corresponding to the △ marks.
Replace the tire as soon as the wear indicators show up as continued use is dangerous.

⇨ P. 12-70

⚠ WARNING

If the remaining tread is too shallow, the tires tend to skid and chances of "hydroplaning" during high speed driving increase. Worn tires should be replaced as soon as possible.

NOTE:
Hydroplaning can occur when driving on a wet roads at high speeds. When a vehicle hydroplanes, tires ride up on and slide over a film of water, causing the driver to lose control of both steering and braking.



3 Checking for cracks, damage, and objects embedded in tread

- Check both the tread and the sides of each tire for cracks, damage, and excessive or unusual wear. Check also for metal pieces, nails, and stones that might be embedded in the tread or caught between the tires of dual wheels.
- Touch the tire by hand to check whether rubber has softened by adhesion of oil, chemicals, etc. Check also the tire expansion or deformation. Check the spare tire at the same time.

⚠ WARNING

Severely damaged or worn tires are susceptible to puncture during use and should be replaced as soon as possible.

Tire replacement

1 Preparation for tire replacement

- Park the vehicle on a flat, hard surface. Pull the parking brake all the way on. Place the gearshift lever in the “P” position.
- Be sure to stop the engine.
- If you get a flat tire while on the road and need to change it on the spot, pull up your vehicle in a safe place where it will not block traffic, and activate your hazard warning lamps to flash and use a red or white flag or cloth to give warning to passing vehicles.
- Have all passengers get out of the vehicle.
- Remove any heavy cargo from the vehicle.
- Block the tire diagonally opposite to the tire to be replaced with a chock.

  Example:
  Block the left front tire if the right rear tire is to be replaced.

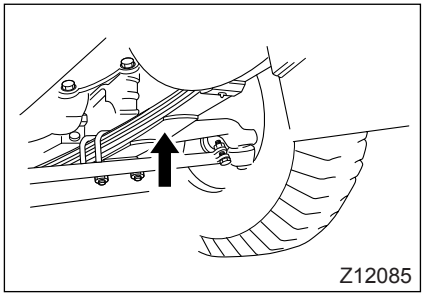
- Prepare a replacement tire.

NOTE:
- *Your vehicle is not provided with a replacement tire as standard equipment.*
- *Applicable tires are as follows.*

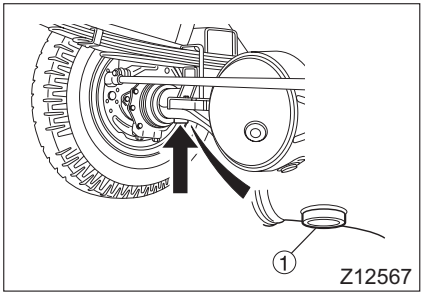
Model	Tire size
FEC5	LT215/85R16-10PR (Load Range E)
FEC7 FEC9	215/75R17.5 124/123L (Load Range F)
FG	LT235/85R16-10PR (Load Range E)

2 Removing the wheel

2.1 Front axle jacking points

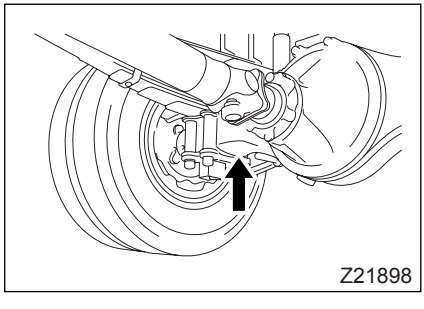


<FE>
Bottom surface of the leaf spring at the rear of tie rod.

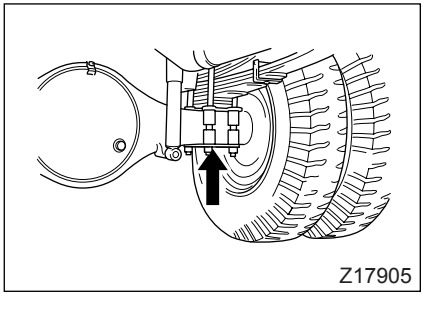


<FG>
Jack support ① under the front axle.

2.2 Rear axle jacking point



<FE>
Bottom surface of the axle housing (beside leaf spring U-bolt mounting).



<FG>
Bottom surface of the axle housing.

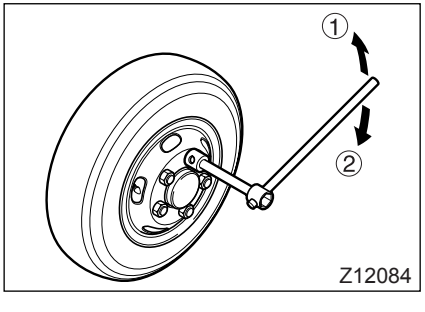
2.3 How to remove a wheel

⚠ WARNING

- **After raising the vehicle slightly, confirm that the jack is securely in position. If the jack slipped out of position with the vehicle fully raised, the vehicle could fall and cause a serious injury.**
- **Apply the jack only to designated jacking points. Applying the jack elsewhere could damage the vehicle and cause the jack to slip out of position.**
- **Never rock or climb below the vehicle when it is jacked up since movement of the jack could result in a serious injury or in damage to the vehicle. Never start the engine when the vehicle is jacked up.**
- **It is dangerous to leave the vehicle jacked up for long periods. If you need to raise the vehicle for an extended period, support it with suitable stands placed against the bottom surfaces of the frame.**
- **Never try to remove the outside wheel of the rear dual wheel by driving only the inside wheel over a wooden block or the like. This may lead to a serious accident.**

1. Securely apply the parking brake. Apply chocks to the front and back (as seen from the side of the vehicle) of the wheel diagonally opposite the one that is to be jacked up.
2. Position the jack under the jacking point of the vehicle and raise the vehicle to a point at which the tire is still touching the ground.

NOTE:
Socket wrenches for use in jacking up the vehicle or loosening/tightening the wheel nuts are not included in the onboard tools.



3. Slightly loosen the wheel nuts by turning them in the illustrated direction. Do not remove the nuts.

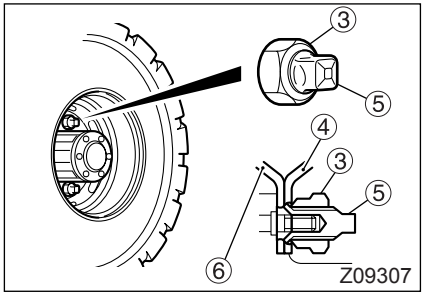
   ① For right-hand wheel
   ② For left-hand wheel

NOTE:
The wheel nuts on the right-hand wheel are marked with "R" and have right-hand threads. Those on the left-hand wheel are marked with "L" and have left-hand threads.

⚠ WARNING

- **Fit the socket wrench securely on the wheel nut. If fitted improperly, the wrench will slip off the nut, and could cause injury.**
- **Do not loosen the wheel nuts too much or you could damage the threads.**

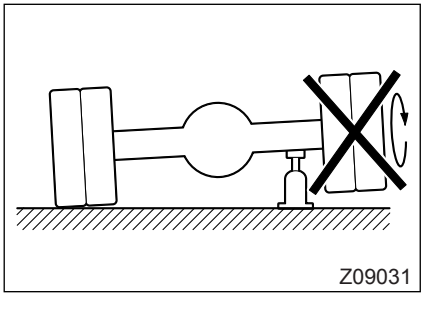
4. Jack up the vehicle until the tire is just clear of the ground.
5. Remove the wheel nuts and then the tire.
6. To remove the tires of a rear dual-wheel, first loosen the outer wheel nuts ③ and remove outer tire ④; then lower the jack, loosen inner wheel nuts ⑤ and jack up the vehicle again to remove inner tire ⑥.

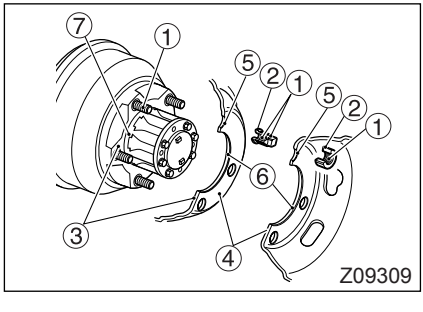


Z09307

⚠ WARNING

- **Do not rotate the jacked-up wheel if the vehicle has a limited-slip differential. Power would be transmitted to the wheel in contact with the ground, and the vehicle could move as a result.**
- **When removing wheels, be careful not to damage the wheel bolts and the threads of the inner wheel nuts.**


Z09031



Z09309

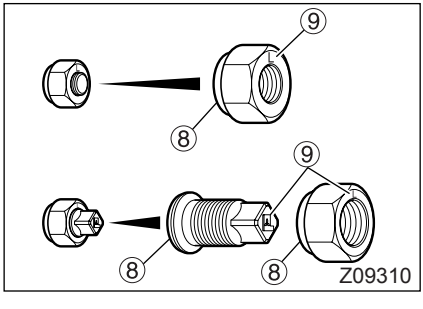
3 Mounting the tire

1. Clean the following sections before mounting the wheel. If they are dirty, the wheel nuts could become loose during driving.

   ① Threads on wheel bolts and nuts
   ② Spherical surface of wheel nuts
   ③ Disc wheel mounting surface
   ④ Disc wheel mating surface
   ⑤ Wheel nut contact surface on disc wheel
   ⑥ Disc wheel inside surface
   ⑦ Guide sections on hub

⚠ WARNING

- **If the above items are dirty, the nuts will become loose during vehicle operation. If wheel bolt or nut threads are damaged or the disc wheel is cracked or otherwise damaged, replace the wheel with a new genuine part. A damaged wheel could work loose and cause a serious accident while the vehicle is in motion.**
- **Do not paint disc wheel mounting surfaces, dual wheel mating surfaces, wheel nut seating surfaces, and wheel hub mounting surfaces as resulting thicker paint film could cause the wheel nuts to loosen up.**
- **Be sure to use the specified types of tires and disc wheels. Mixing bias and radial tires adversely affects steering control and must be avoided at all costs.**
  In addition, mixed use of different types of tires can produce the following undesirable effects:
  - **The ABS system cannot work as intended.**
  - **The speedometer indicates a different speed from the actual vehicle speed.**
  - **The DUONIC® system (transmission) cannot change gear at the optimum timing, so fuel consumption becomes worse.**
  - **The tires may touch the frame and steering components.**



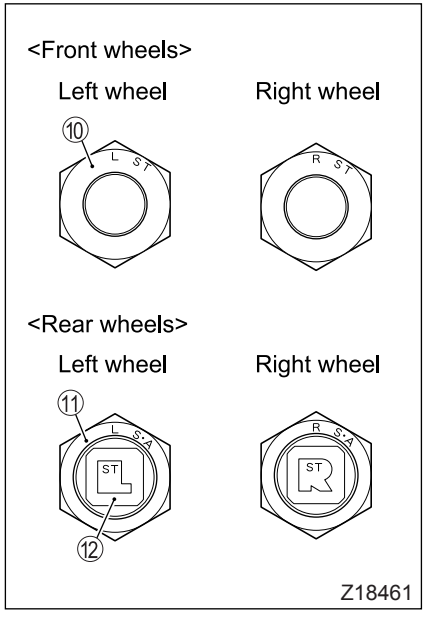
2. Mount the wheel so that the wheel bolts line up with the bolt holes in the disc wheel. Then, tighten the wheel nuts to hold the disc wheel in position. If the wheel nut has a spherical end ⑧, direct the spherical end toward the disc wheel.

⚠ WARNING

When replacing the wheel, take care not to damage the threads on the wheel bolts and inner wheel nuts.

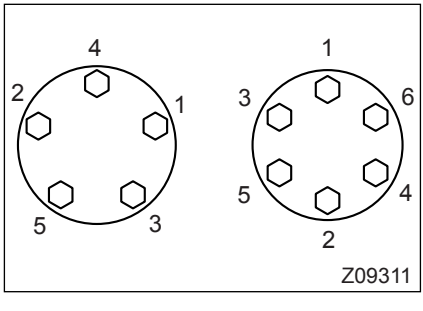
NOTE:

- *The wheel bolts and nuts on the right-hand wheels have right-hand threads, and those on the left-hand wheels have left-hand threads.*
  The bolts and nuts have stamped marks ⑨ for easy identification; an "R" mark for right-hand wheels and an "L" mark for left-hand wheels.



- *Wheel nuts ⑩, outer wheel nuts ⑪ and inner wheel nuts ⑫ are marked with "ST" or "S·A". The "ST" mark indicates that these fasteners are for steel wheels and the "S·A" mark that they are for both steel and aluminum wheels.*

3. Lower the vehicle gently until the tire makes contact with the ground.



4. Tighten the wheel nuts in the order shown in the illustration, repeating the tightening cycle 2 to 3 times. Finally, tighten the nuts to the specified torque.

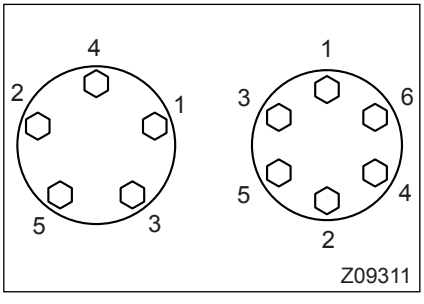
Tightening torque	440 to 540 N·m (325 to 398 ft.lbs., 45 to 55 kgf·m)

⚠ WARNING

- **Fit the socket wrench securely on the wheel nut. If fitted improperly, the wrench will slip off the nut, and could cause injury.**
- **Do not jump or jerk on the wrench handle when tightening the nut by using your own weight. Doing so can overtighten the nut. Overtightening the nuts could overstrain the bolts or deform the disc wheel's surface.**
- **The wheel nuts must be tightened to the specified torque. If the nuts are tightened loosely or too tight, parts may be damaged and wheels may come off. Such status may lead to impossibility of driving, and result in damage of the vehicle and physical injury.**

⚠ CAUTION

Wheel nuts should be tightened with a torque wrench, using a socket wrench and wrench handle should be done in emergencies only. Use a torque wrench to check the torque as soon as possible after using a socket wrench and wrench handle to tighten the wheel nuts.



5. Mount dual rear wheels as described below.

⚠ WARNING

When replacing an outer wheel of a dual rear wheel, be sure to retighten the inner wheel nuts before tightening the outer wheel nuts.

NOTE:
When installing dual wheels, position the air valve of the outer wheel diagonally opposite that of the inner wheel.

Mount the inner wheel, then jack up the vehicle again. Set the outer wheel such that the wheel bolts are located in the centers of the disc wheel's bolt holes, then tighten the wheel nuts just enough to eliminate looseness.
Lower the vehicle, then tighten the wheel nuts in the illustrated sequence. Work through the sequence two or three times, finally tightening each wheel nut to the specified torque.

6. If only the outer wheel of dual wheels is replaced, retighten the inner wheel nuts to the specified torque before mounting the outer wheel.

⚠ WARNING

As the vehicle is driven after a wheel has been replaced, the wheel nuts loosen up somewhat during the early stages of driving due to "wear-in." Therefore, it is necessary to retighten the wheel nuts to the specified torque after driving 50 to 100 km (30 to 60 miles). Thereafter, retighten the nuts at regular intervals.

Wheel nuts – check and retightening

Inspection intervals	Every 30,000 km (18,000 miles) or every 12 months

With a new vehicle, perform the first inspection after 4,000 km (2,500 miles).

⚠ WARNING

After changing a tire, the wheel nuts will loosen somewhat during the initial stages of driving due to "wear-in." Therefore, retighten the wheel nuts to specification after you have driven 50 to 100 km (30 to 60 miles).

Using a torque wrench, check for loose wheel nuts and tighten as necessary.

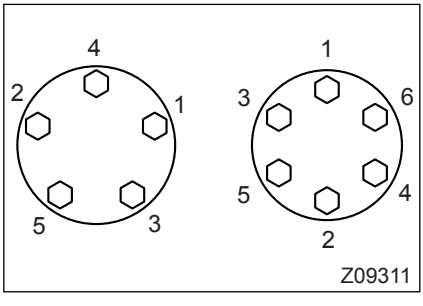
⚠ CAUTION

Be sure to use a torque wrench to tighten the wheel nuts.

Wheel nut tightening torque	440 to 540 N·m (325 to 398 ft.lbs., 45 to 55 kgf·m)

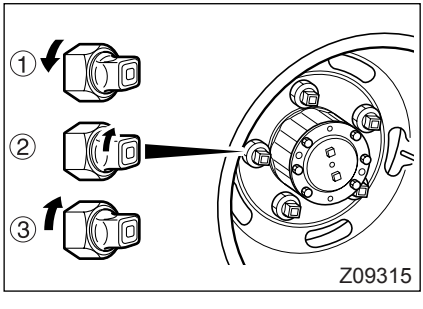
⚠ WARNING

- **A loose wheel nut could cause parts damage, and result in a tire falling off. This could result in impossibility of driving, and damage of the vehicle and physical injury. Be sure to check the wheel nuts regularly.**
- **Fit the socket wrench securely on the wheel nut. If fitted improperly, the wrench will slip off the nut, and could cause injury.**



- **Single tire**

Tighten the wheel nuts to the specified torque. Follow the diagonal tightening sequence indicated in the figure.



- **Dual wheels**

Retighten the wheel nuts using the following 2-process procedure.

1st process

① Loosen the outer wheel nuts as follows:
5-bolt type: Loosen the nuts numbered 1 – 2 – 3 or 4 – 5 in the figure in this order.
6-bolt type: Loosen the nuts numbered 1 – 4 – 5 or 2 – 3 – 6 in the figure in this order.

② Tighten the inner wheel nuts corresponding to the loosened outer wheel nuts to the specified torque.

③ Tighten the loosened outer wheel nuts to the specified torque.

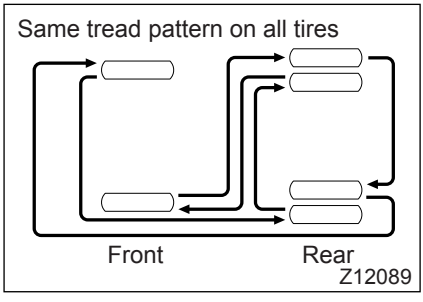
2nd process

④ Perform the above steps ① through ③ for the remaining outer wheel nuts and inner wheel nuts.

⚠ WARNING

In the case of dual wheels, one often retightens outer wheel nuts while forgetting to retighten inner wheel nuts. Always follow the above procedure to tighten all the nuts.

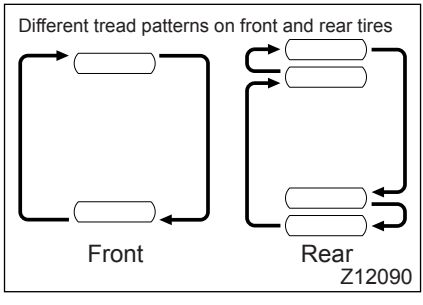
NOTE:
The wheel bolts and nuts on the right-hand wheels have right-hand threads, and those on the left-hand wheels have left-hand threads.
The bolts and nuts have stamped marks for easy identification; an "R" mark for right-hand wheels and an "L" mark for left-hand wheels.



Tire rotation

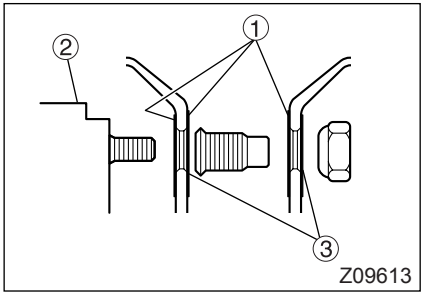
The amount of wear on a tire depends on the load and its position on the vehicle. To equalize wear and extend life as much as possible, rotate the tires at regular intervals.

Tire rotation intervals	Every 30,000 km (18,000 miles) or every 12 months



- Use a tire of the same type on a single axle. If different type tires are mounted on an axle, the vehicle tends to pull to one side during braking, and could cause you to lose directional control of the vehicle.
- Applicable tires are as follows.

Model	Tire size
FEC5	LT215/85R16-10PR (Load Range E)
FEC7 FEC9	215/75R17.5 124/123L (Load Range F)
FG	LT235/85R16-10PR (Load Range E)

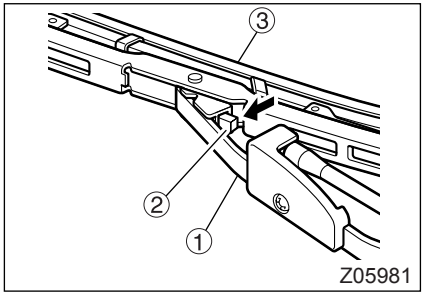


⚠ WARNING

- **Be sure to use the specified type of tires. Mixing bias and radial tires results in poor steering and should be avoided at all cost.**
- **As the vehicle is driven after a wheel has been replaced, the wheel nuts loosen up somewhat during the early stages of driving due to "wear-in". Therefore, it is necessary to retighten the wheel nuts to the specified torque after driving 50 to 100 km (30 to 60 miles). Thereafter, retighten the nuts at regular intervals.**
- **If as a result of tire rotation, an additionally painted face of the disk wheel mounting face ① becomes the mounting face for the mating part (wheel hub ② and disk wheel), remove the paint from the mounting face of the disk wheel and the seating face ③ of the wheel nut, clean these surfaces with a wire brush or the like, and then install the wheel.**
  If you use the mounting faces without removing the paint, the wheel nuts are likely to become loose because the paint film is thick.

⚠ CAUTION

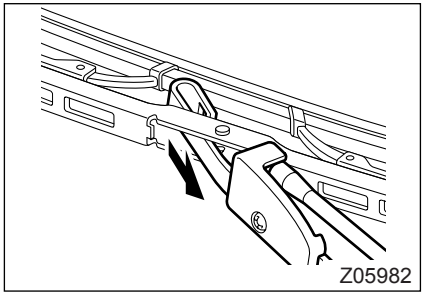
- **Break in new tires by driving 200 km (125 miles) or more at 60 km/h (37 mph) or less. After this run-in period, check tire pressure.**
- **If using different tread patterns on the front and rear wheels, select tires with a ribbed tread for the front wheels and tires with a traction-type tread for the rear wheels.**



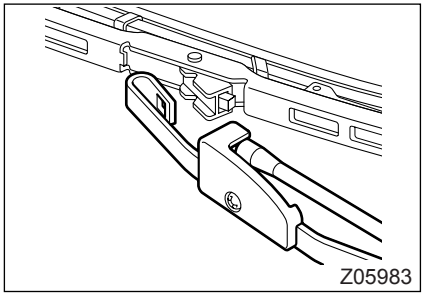
Wiper blade – replacement

1 Replacing wiper blade

1. Raise wiper arm ①, and then push clip spring ② in the direction of the arrow (see figure).



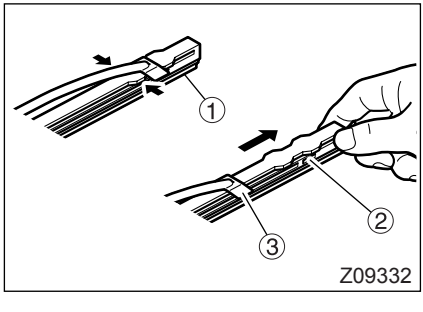
2. With the clip spring kept in the pushed position, press wiper ③ toward the wiper arm.



3. The wiper blade will come off the wiper arm.
   Install a new blade in the reverse order of removal.
   Use a genuine replacement part.

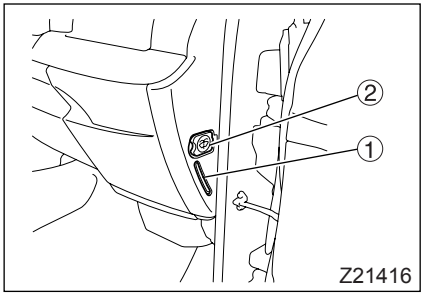
⚠ CAUTION

Do not bring the wiper arms back into position or operate the wipers without wiper blades, as this could scratch the windshield.



2 Replacing blade rubber only

1. Raise the wiper arm.
   Pinch both sides (indicated by arrows) of blade rubber ① with your fingers and then pull the blade rubber so that claws ③ are unhooked from grooves ② in the blade rubber.
2. Slide out the blade rubber.
3. Replace the old blade rubber with a new genuine wiper blade rubber.
   To install, reverse the removal procedure. Make sure that the claws fit into the grooves in blade rubber.



Windshield washer – fluid level check and refilling

1 Fluid level check

Check the washer fluid level through level check window ①.
When the level has dropped to the lower part of the window or is not visible at all, refill the tank with washer fluid.

2 Refilling

1. Open the assistant driver's door.
2. Open windshield washer tank cap ② and pour in a mixture of windshield washer fluid and tap water until the level reaches the top of the check window.
3. Close the cap tightly after refilling.

Windshield washer fluid quantity	Approx. 3.0 liters (3.2 qts)

⚠ CAUTION

- **Substituting soapy water for washer fluid could result in clogged washer nozzles or spots on painted surfaces.**
- **Operating the washer continuously for more than 20 seconds or when there is no fluid in the reservoir could burn out the washer motor.**

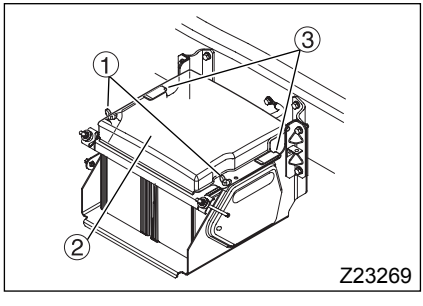
NOTE:
When it is very cold, the ratio of windshield washer fluid to water should be increased in order to prevent the mixture from freezing up.

Battery – check

Inspection intervals	At the time of pre-operational check

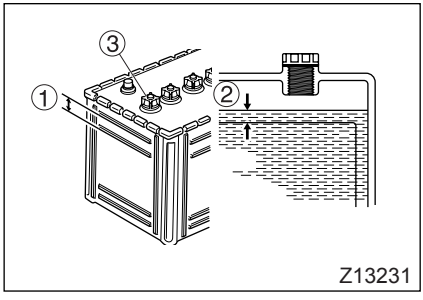
⚠ WARNING

- **The battery generates flammable hydrogen gas and should be kept away from open flame and spark.**
- **When removing the battery, always disconnect the negative (–) terminal first and reconnect it last. A spark can occur if a tool touches the positive (+) terminal and frame with the negative (–) terminal connected.**
- **When handling the battery, wear safety goggles to protect your eyes.**
- **Perform all battery checks with the engine turned off.**



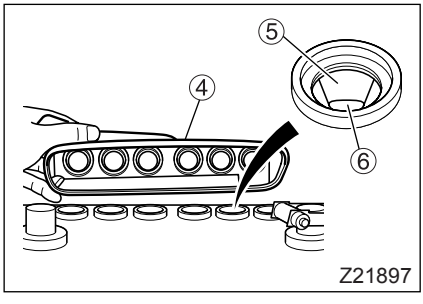
1 Removal and installation of battery cover

1. Remove the two wing bolts ①. Pull the cover ② toward you to remove it from the stoppers ③.
2. To fit the cover, follow the removal steps in reverse. After fitting the cover, make sure it is securely retained.



2 Inspecting the battery

- The battery fluid level should be between the "UPPER LEVEL" line and "LOWER LEVEL" line ① marked on the battery case. If the battery fluid level is low, add electrolyte or distilled water to the "UPPER" level line.
- If your battery has no level line markers, the fluid should be ② 10 to 15 mm above the tops of the electrode plates.



- If the side of the battery case is not in your direct view due to equipment or other things on the vehicle body, do the following:
  - Remove the battery's cap ③.
  - Check the battery fluid level using an appropriate mirror like a hand mirror ④.
  - Check whether the battery fluid ⑥ comes up to the bottom ⑤ of the sleeve of each filler hole.

⚠ DANGER

BATTERY FLUID IS DILUTE SULFURIC ACID AND CAN HARM MOST THINGS IT TOUCHES, INCLUDING HUMAN SKIN AND CLOTHING. IF YOU GET IT ON YOUR SKIN OR CLOTHING, FLUSH IT OFF WITH SOAP AND WATER. IF YOU ACCIDENTALLY GET BATTERY FLUID IN YOUR EYES, WASH YOUR EYES WITH LOTS OF CLEAN WATER THEN PROMPTLY SEE AN EYE DOCTOR FOR TREATMENT.

⚠ WARNING

Do not use the battery with the fluid below the "LOWER" level line. The battery would deteriorate rapidly, and it could overheat or explode.

⚠ CAUTION

- **Whenever battery fluid has been added, either charge the battery or run the vehicle for a while. It is especially important in cold weather as the battery can freeze up and be damaged.**
- **Do not add so much fluid that the fluid in the battery rises above the "UPPER LEVEL" line. With the fluid above the "UPPER LEVEL", fluid could leak out and corrode the battery terminals.**
- **If you do not use the vehicle for an extended period, remove the battery.**

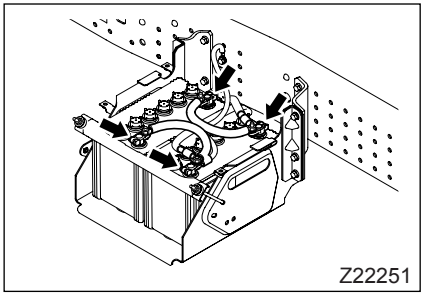
3 Cleaning the terminals

Use warm water and sodium bicarbonate (baking soda) to remove any white powder caused by corrosion.
If a terminal is seriously corroded, remove the battery cable and clean the terminal with a wire brush or sandpaper.
After cleaning, apply a thin coat of grease to the terminals.

⚠ CAUTION

If the battery needs to be charged, remove it from the vehicle and remove the caps where possible before starting the procedure. If it is charged in the vehicle due to unavoidable circumstances, be sure to disconnect the negative (–) battery cable.

NOTE:
Follow the correct procedure when jump starting a vehicle with a dead battery by connecting it to a live battery using a booster cable. ⇨ P. 13-29


Z22251

4 Battery removal and installation

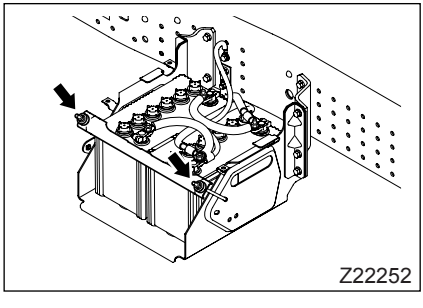
1. Disconnect the battery cables (each indicated by an arrow ➡ in the illustration) from the battery terminals.

⚠ WARNING

When disconnecting the battery cables, disconnect the (–) cable first. When connecting the battery cables, connect the (–) cable last. If you accidentally touched the (+) terminal and the vehicle body with a tool with the (–) cable connected to the battery, a dangerous short circuit could occur.

⚠ CAUTION

The BlueTec® exhaust gas aftertreatment continues to work for 2 minutes even after the starter switch is turned to "LOCK". Wait for at least 2 minutes after shutting off the engine before disconnecting the battery.


Z22252

2. Remove the battery support mounting nuts (each indicated by an arrow ➡ in the illustration).
3. Remove the battery support ①, then remove the battery.
4. Install the battery by performing these steps in reverse. After installing the battery, make sure it is securely retained.

⚠ WARNING

Be sure to observe the following instructions when storing a battery.

- **Select a storage place where the battery fluid will not freeze.**
- **The storage place must be free of any heat source and well ventilated.**
- **The battery must be kept out of reach of children.**
- **The battery must be placed with the terminals facing upward. Do not place the battery on its side. Doing so could cause battery fluid leakage and a fire.**

⚠ CAUTION

Install the battery securely in position. If it is left loose, shocks and vibrations from road surface could damage the battery case and electrode plates, shortening battery life.

Air filters – cleaning

Remove and clean the air filters (heater or air conditioner filters) with water or compressed air to eliminate dust and dirt at regular intervals (6 months or so).
Clogged filters may cause inefficient heating or air-conditioning, and even malfunction of the blower motor.

⚠ WARNING

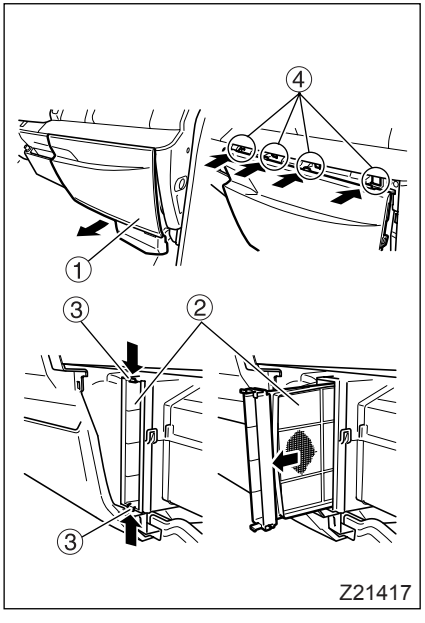
When cleaning the air filters, wear a dust mask to avoid inhaling dust. Dust inhalation can have adverse health effects.

⚠ CAUTION

Clean the air filters at shorter intervals if your vehicle is used frequently in dusty areas.

1 Outside air filter

Disassembly is necessary before the outside air filter can be cleaned. Have an authorized dealer do the job.



2 Dashboard air filter

1. Remove the lower panel ① in front of the assistant driver's seat.
2. Pull out the air filter ② while pushing inward both the tabs ③ on the filter.
3. Reinstall the lower panel by first aligning the claws ④ with the corresponding slots and then pushing the panel forward.

Cleaning your vehicle

⚠ WARNING

- **Some cleaning fluids are poisonous or flammable. Carefully follow the safety precautions shown on the container.**
- **Use solvent-based cleaning materials only in a well ventilated area.**
  Open the windows when using solvent-based cleaning materials in the cab.
- **The following materials could injure you or damage the vehicle, and should not be used:**
  Acetone, lacquer thinner, enamel thinner, nail enamel remover, and other volatile solvents; laundry soap, bleach, deoxidant, and other detergents; carbon tetrachloride, gasoline, benzene, naphtha, and other petrochemicals.

1 Exterior cleaning

1.1 Cleaning glass surfaces

Keep the vehicle's windows and screens clean at all times. Use glass cleaner and wipe it off with a sponge or soft cloth.

⚠ CAUTION

Never apply rubbing compound to glass since it leaves scratches.

1.2 Washing

You must wash the vehicle whenever it has experienced any of the following:

- Been driven on coastal roads
- Been driven on roads where road chemicals have been applied
- Become contaminated by coal tar, smoke, soot, powder dust, iron powder, lime powder, sap, bird droppings, etc.
- Adhesion of dust and/or mud

Using a hose, wash the mud and dirt off the body surfaces. Wash not only the surfaces around the cab, but also the wheel housings and the underside of the chassis.

Especially after you have driven in a coastal area or on salted road in the winter, your vehicle should be given a thorough washing. Also try to wax the body surfaces once a month.

⚠ WARNING

When washing the underside of the vehicle, be careful not to hurt yourself on the edges of panels and other parts.

⚠ CAUTION

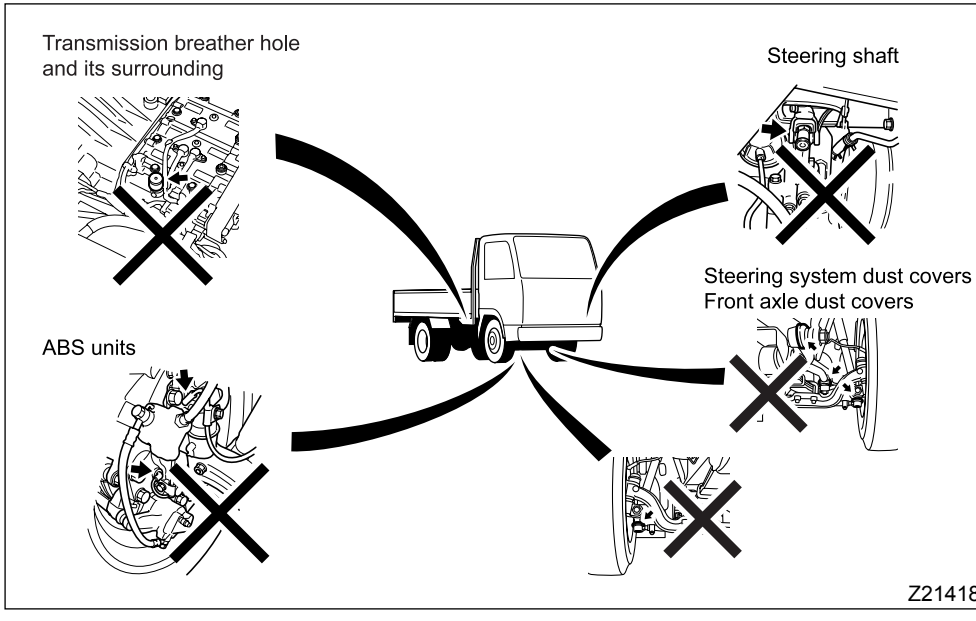
- **Wash the vehicle with luke-warm or cold water. Do not use very hot water.**
- **Avoid leaving the vehicle in direct sunlight.**
- **Do not use concentrated soap or synthetic detergents.**
- **Rinse the detergent off with water. Take care that none remains on the paintwork since it could discolor the paint.**
- **Cleaning plastic parts with thinner or gasoline could result in cracking or discoloration.**

- **In cold weather, the key holes and rubber parts of the door sometimes freeze, making it hard to open the door. After washing, remove moisture on and around the doors. Applying silicone with antifreeze capabilities is one solution to this problem.**
- **When washing the vehicle in cold weather, be careful not to directly spray water over the key slot in the fuel tank cap (vehicles with a key-locked fuel tank cap). If the key slot is wet with water, the fuel tank cap may become impossible to open. It is also important to thoroughly wipe off water around the fuel tank cap after washing the vehicle.**
- **Do not clean the interior by splashing water on it as this could damage relays, the computer, and other electrical devices.**
- **Thoroughly wash the vehicle, especially the wheel wells and underside of the chassis after driving on coastal roads or roads where road chemicals have been applied. Thorough washing is also important if your vehicle is frequently used to transport marine products or lime because seawater will affect the vehicle and lime will severely damage the vehicle's paintwork. Road chemicals, if left deposited for a long time on vehicle parts, will set hard and be difficult to remove by ordinary washing. Wash out road chemicals using a high-pressure cleaning machine if necessary so that they do not remain on the vehicle. Road chemicals in large amounts as well as salt will easily cause rusting.**
- **When stepping onto the bumper to clean the windshield, do not hold the wiper arms. Doing so could cause a wiper malfunction.**
- **Do not use a vehicle-cleaning brush to clean the plastic lenses of the turn-signal lamps. A brush could scratch the lenses. Wash the lenses with water, then wipe them with a soft cloth.**
- **When the vehicle is washed, braking performance can be reduced by water entering the brake drums or splashed over the brake discs. In this event, drive slowly with light pressure on the brake pedal to dry out the brakes. Pay attention to nearby vehicles while doing so.**

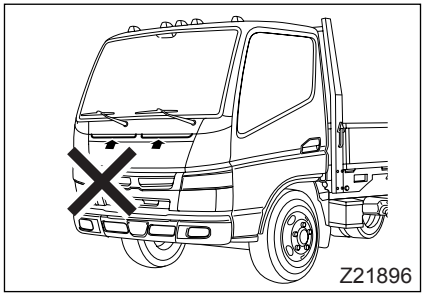
NOTE:
Aluminum wheels may become whitish as oxide film forms on their surface over time. The color on the wheel near the exhaust pipe end may become yellowish. Regardless of the color, you can remove the oxide film by using a commercially available polish when washing the wheel.

When cleaning the engine compartment or undercarriage of the vehicle using a high-pressure cleaner, be careful not to point the jet of water at the areas listed below.

NOTE:
Avoid exposing the components and wiring to high-pressure water or cleaner steam as the system could be damaged and not operate properly.



- The air intake port or the area where it connects to the engine.
- The starter, alternator, connectors, and other electrical parts
- High-current fuse box
- The engine compartment
- Lamps
- Around the wheels
  Steering shaft universal joint, steering system dust covers, front axle dust covers, and ABS units.



- The outside air inlets

1.3 Waxing

Wax the vehicle once or twice a month or whenever the wax on the vehicle ceases to repel water.
Apply wax out of direct sunlight and only when the vehicle's paintwork is cooler than human body temperature.

1.4 Dirt caked on paintwork

The following contaminants can cause corrosion, discoloration, or staining of the vehicle if not washed off: calcium chloride and other salts; road chemicals, oil; tar; tree sap; bird droppings; and industrial soot.
If you cannot easily clean off these contaminants, use a synthetic cleaner that does not scratch or otherwise damage painted surfaces.

1.5 Small chips and scratches

Chips, cracks, and scratches caused by grit thrown up off the road should be fixed as soon as possible. If the body metal is visible, corrosion will quickly set in and require expensive treatment. Your dealer can supply touch-up paint for small chips and scratches.

2 Rust and corrosion

- Rust and corrosion developing on the underside and/or undercarriage of the vehicle could cause an unexpected failure and even lead to an accident. Check these areas occasionally (such as after washing) for rust/corrosion and resulting holes. If rust is found, remove it using a wire brush and coat the affected area with a touchup paint or rust-preventive material. If you find a hole, have your vehicle repaired by an authorized dealer as soon as possible.
- To help keep your vehicle running reliably for a long time, you should conduct a detailed check for rust/corrosion at least once a year, and if necessary, apply touchup paint or rust-preventive material.

3 Interior cleaning

- Do not use any organic solvent (for example, thinner or gasoline) or any acidic or alkaline solvent. It could cause discoloration and/or stains.
- Dirt can leave marks or stains and should be cleaned off as soon as possible.
- Clean the interior of the vehicle with a sponge or soft cloth. Remove stubborn dirt with a soft brush.
- Use the appropriate cleaning technique for each interior item to avoid discoloration and stains.
- Do not water-wash the floor with the floor mat left in place as this could cause the floor to rust and could also damage the relays, switches and other electrical components.
- If water collects in the cab, either remove the drain plug from the floor and allow the water to drain out or wipe up all the water using a cloth.

3.1 Cleaning interior trim

Keep the vehicle's interior trim clean at all times.

1. Clean out all dust on the trim with a vacuum cleaner or soft brush.
2. Wipe vinyl trim areas carefully with cloth dampened with water.
3. Wipe dirt and marks off the trim with a commercially available cleaner.

3.2 General dirt

A multi-purpose powder-type cleaner is recommended for cleaning general dirt. Soapsuds are also usable.

1. Clean out all loose dust with a vacuum cleaner or soft brush.
2. Dilute the cleaner in water to the specified concentration. The best results can usually be obtained with a thinner solution.
   When soapsuds are used, apply them with a sponge or soft cloth.
3. Wipe up any remaining cleaner with a towel or other absorbent cloth.
4. Finish cleaning by gently wiping the surface with a dry soft cloth to polish it.

3.3 Grease and oil

Use this method to remove contamination by grease, oil, butter, margarine, shoe polish, white coffee, chewing gum, beauty cream, vegetable oil, wax, crayon, tar, and asphalt.

- Wipe off the contamination, then apply a fabric cleaning solution.

- Shoe polish, wax, crayon, tar, and asphalt can stain the trim if not cleaned off quickly.
  Carefully use cleaner because it dissolve these contaminants and can cause a smudge.

3.4 Organic contaminants

Use this method to remove marks resulting from tomato ketchup, black coffee, egg, fruit, fruit juice, milk, cold drinks, wine, vomit, urine, and blood.

1. Wipe off the smudge, then wipe the area again with a damp sponge.
2. If the area is stained, apply a multi-purpose foam-type cleaner.
3. If the smell of vomit or urine lingers, dissolve 5 ml (0.17 fl oz.) of baking soda in 250 ml (8.5 fl oz.) of luke-warm water and use the solution to clean the affected area.
4. If necessary, lightly wipe the area with a fabric cleaning solvent.

3.5 Other contaminants

Use this method to remove contamination by candy, ice cream, mayonnaise, and chili sauce.

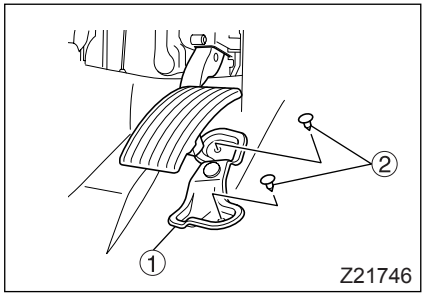
1. Carefully clean off the contamination, then wash the area with water and dry it.
2. If any spot remains, clean with a fabric cleaning solvent.

3.6 Cleaning vinyl surfaces

- Vinyl can usually be cleaned with warm water and mild soap, e.g., saddle soap.
- Apply a little soapy water and leave it for several minutes. Then, rub the area hard with a cloth wet in water. Repeat this process until the area is completely clean.
- Tar, asphalt, and shoe polish can leave stains if not cleaned off quickly.
  With a clean cloth impregnated with vinyl cleaner, wipe the area clean.

3.7 Cleaning seat belts

- Keep your vehicle's seat belts clean and dry at all times. Clean them with mild soap and luke-warm water. Never use gasoline, thinner, or other flammable liquids since these will weaken the webbing.
- Do not bleach or re-dye the webbing since this would seriously weaken it.



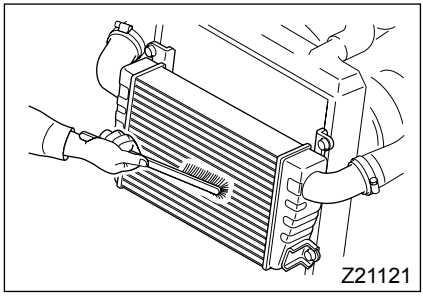
3.8 Removing floor mat for cleaning

1. Remove the accelerator stopper ① by removing its screws ②.
2. Install the accelerator stopper being careful not to let the cut edge of the floor mat become caught under the stopper.

⚠ CAUTION

After cleaning the floor mat, dry the felt backing before putting the mat back on the floor. When fitting the floor mat back in the vehicle, make sure it does not interfere with the accelerator pedal and other moving parts. If the floor mat is interfering with the accelerator pedal, the pedal cannot return to the fully free position even when it is released, which could lead to an accident.

NOTE:
If you cannot, have screws of accelerator stopper removed by an authorized dealer.



Intercooler – cleaning

If the front of the intercooler is heavily clogged with dust or mud, the engine performance may be affected. Clean it from time to time by using a soft brush or something also appropriate.

⚠ CAUTION

The intercooler could be damaged if a bristle brush or an object with a sharp point is used for its cleaning.

13. Useful advice for emergencies

Possible failures, causes and remedies 13-2
Stopping your vehicle in an emergency 13-7
If the engine overheats 13-8
When a fuse has blown 13-10
When a lamp has burned out 13-18
When braking is sluggish 13-28
If the engine stalls while the vehicle is in motion 13-28
If a tire goes flat while the vehicle is in motion 13-28
When the battery has run down 13-29
If fuel tank becomes empty (Bleeding the fuel system) 13-31
If the DEF tank becomes empty 13-31
Towing 13-32
When the vehicle becomes stuck in soft ground 13-33

Possible failures, causes and remedies

Performing daily checks and good maintenance are keys to preventing mechanical failures and the resultant accidents. Be sure to check and service your vehicle regularly.
Should your vehicle suffer a mechanical failure or malfunction, the measures needed to correct the problem can be found using the following chart.
If you are unable to correct the problem yourself or the problem persists after you have attempted to repair it, contact an authorized dealer for technical assistance.

The engine does not start.
The starter does not turn over or turns over too slowly.

Possible cause	Remedy	Ref. page
The starter switch fuse or high-current fuse is blown.	Replace the blown fuse or high-current fuse with a new one of the specified amperage.	13-10
Battery has run down.	Charge or replace the battery.	13-29
Battery cable is disconnected, loose or corroded.	Remove corrosion and connect the cable correctly.	12-85
Connection to ground terminal is open.	Connect securely.	–
Engine oil viscosity is too high.	Replace the oil with an oil of proper viscosity.	12-23
The starter is malfunctioning.	Have an authorized dealer perform necessary inspection.	–
Communication with the engine immobilizer starter key is failed.	Check whether anything metallic or another key is touching the starter key.	3-3
The engine immobilizer system is faulty.	Have an authorized dealer perform necessary inspection.	–

The starter turns over normally.

Possible cause	Remedy	Ref. page
Fuel has run out.	Refuel and bleed the system.	13-31
Air is present in the fuel system.	Bleed the system.	13-31
The fuel filter is clogged.	Replace the filter element.	12-43
Fuel is frozen.	Heat the fuel pipe with hot water [60°C (140°F) or less].	–
The air cleaner is clogged.	Clean or replace the element.	12-47

Possible cause	Remedy	Ref. page
The engine preheating time is insufficient.	Follow the preheating instructions.	5-7
The fuel injection system is malfunctioning.	Have an authorized dealer perform necessary inspection.	–
The BlueTec® exhaust gas aftertreatment is short of DEF.	Add the specified DEF.	1-8
A fluid other than the specified DEF is inside the tank.	Place the starter switch in the “LOCK” position, and immediately contact an authorized dealer who will discharge the fluid and inspect the vehicle.	–

The engine starts but stalls immediately.

Possible cause	Remedy	Ref. page
Idling speed setting is too low.	Have an authorized dealer perform necessary inspection.	–
The fuel filter is clogged.	Replace the filter element.	12-43
The air cleaner is clogged.	Clean or replace the filter element.	12-47
The DPF is blocked.	Have an authorized dealer perform necessary inspection.	–

The engine fails to stop.

Possible cause	Remedy	Ref. page
The fuel injection system is malfunctioning.	Have an authorized dealer perform necessary inspection.	–
The starter switch is malfunctioning.	Have an authorized dealer perform necessary inspection.	–

Black or white exhaust gas

Possible cause	Remedy	Ref. page
The DPF system is malfunctioning.	Have an authorized dealer perform necessary inspection.	–

The engine overheats.

Possible cause	Remedy	Ref. page
The front of the intercooler and radiator is plugged with dust and dirt.	Clean the intercooler and radiator with a soft brush.	12-61 12-95
The coolant level is too low.	Add coolant.	12-52

Possible cause	Remedy	Ref. page
The engine pressure cap is not closed completely.	Install the cap firmly.	–
The fan belt is loose.	Have an authorized dealer perform necessary inspection.	–
The coolant is contaminated.	Flush the cooling system and replace the coolant.	12-52

Engine oil pressure does not build up.

Possible cause	Remedy	Ref. page
Insufficient quantity of engine oil.	Add engine oil.	12-23
Engine oil viscosity is not adequate.	Replace the engine oil with one of a proper viscosity.	12-23

Fuel consumption is excessive.

Possible cause	Remedy	Ref. page
There is a fuel leak.	Check the fuel system and retighten connections as necessary.	–
The air cleaner is clogged.	Clean or replace the air cleaner element.	12-47
Tire pressure is too low.	Adjust to the adequate inflation pressure.	12-67
The clutch disc is worn.	Have an authorized dealer perform necessary inspection.	–

Engine oil consumption is excessive.

Possible cause	Remedy	Ref. page
The wrong oil is being used.	Replace the engine oil with a proper one.	12-23
There is too much oil.	Adjust the quantity to the proper level.	12-23
There is an oil leak.	Check the oil circuit and retighten connections as necessary.	–
Engine oil replacement intervals are too long.	Change the engine oil at prescribed intervals.	12-23
The oil filter is clogged.	Replace the filter element.	12-40

Drive power is insufficient.

Possible cause	Remedy	Ref. page
The parking brake is activated.	Release the parking brake completely.	5-15
The air cleaner is clogged.	Clean or replace the air cleaner element.	12-47
The fuel filter is clogged.	Replace the filter element.	12-43
Air is present in the fuel system.	Bleed the fuel system.	13-31
The clutch is slipping.	Have an authorized dealer perform necessary inspection.	–
The DPF is blocked.	Have an authorized dealer perform necessary inspection.	–
Crystallized DEF blocks the muffler.	Have an authorized dealer perform necessary inspections.	–

Braking is sluggish.

Possible cause	Remedy	Ref. page
Vacuum is insufficient.	Increase the engine speed to boost vacuum.	–
Brake fluid is insufficient.	Add brake fluid.	12-36
There is vacuum leak.	Check the vacuum circuit and retighten connections as necessary.	–
The brake pads are worn.	Have an authorized dealer perform necessary inspection.	–
There is air in the brake fluid.	Have an authorized dealer perform necessary inspection.	–

The vehicle pulls to one side during braking.

Possible cause	Remedy	Ref. page
Tires are not uniformly inflated.	Inflate tires properly.	12-67
Tires wear unevenly.	Change the tires.	12-70
Cargo is heavier on one side than the other.	Load cargo evenly.	7-19

Steering is difficult.

Possible cause	Remedy	Ref. page
Cargo is over-loaded on the front side.	Load cargo evenly.	7-19
Power steering fluid is insufficient.	Add power steering fluid.	12-39
Front tire pressure is insufficient.	Inflate tires to recommended pressures.	12-67

The steering wheel vibrates.

Possible cause	Remedy	Ref. page
Wheel nuts are loose.	Tighten the wheel nuts to specification.	12-73
Tires are not uniformly inflated.	Inflate tires properly.	12-67
Tires wear unevenly.	Replace tires.	12-70
Tires are damaged.	Replace tires.	12-70
Wheels are not balanced properly.	Have an authorized dealer perform necessary inspection.	–
Brakes are not balanced properly.	Have an authorized dealer perform necessary inspection.	–

The steering wheel does not return to the straight ahead position smoothly.

Possible cause	Remedy	Ref. page
Parts are insufficiently greased.	Grease parts.	12-19

The lamp does not light up.

Possible cause	Remedy	Ref. page
The bulb is out.	Replace the bulb.	13-18
There is an open circuit or defective grounding.	Have an authorized dealer perform necessary inspection.	–

The battery frequently runs down.

Possible cause	Remedy	Ref. page
The battery terminals are loose or corroded.	Scrape off corrosion and tighten down terminals.	12-85
The fan belt is loose.	Have an authorized dealer perform necessary inspection.	–
The battery is short of electrolyte.	Add battery electrolyte.	12-84
The life of the battery has expired.	Replace the battery.	12-86

Possible cause	Remedy	Ref. page
Idling speed setting is too low.	Have an authorized dealer perform necessary inspection.	–
Vehicle is used only at nighttime.	Charge the battery.	–
Switches are left on.	Be sure to turn off the switches.	–
Faulty alternator	Have an authorized dealer perform necessary inspection.	–

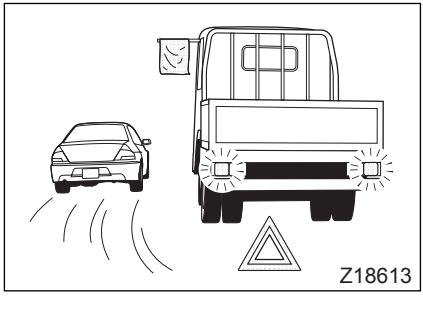
Stopping your vehicle in an emergency

Should a mechanical failure occur, do not panic. Simply slow your vehicle while paying attention to the vehicles behind you, and pull off the road at a place where you do not hinder the flow of traffic.

⚠ WARNING

- **Stopping your vehicle in a tunnel could be dangerous. Wherever possible, drive out of the tunnel before stopping the vehicle.**
- **Be sure to block the wheels with chocks after stopping the vehicle as mechanical failure may render the parking brake inoperative.**

NOTE:
If the engine stops, it is not possible to move the vehicle using only the starter.



1 Marking your vehicle

After you have pulled off the road, alert other drivers as follows so that they do not run into your vehicle.

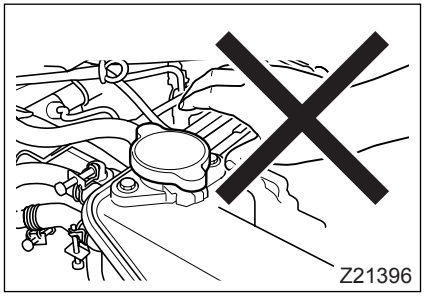
- Flash the hazard warning lamps.
- If your vehicle carries reflective triangles, erect them by the side of the road behind the vehicle.

2 Repair

Check the mechanical failure and if you judge it readily repairable, fix it while paying attention to the traffic. If you are unable to repair it, call an authorized dealer for help.

⚠ WARNING

Never attempt to perform repairs on an expressway or in a tunnel as doing so is very dangerous.



If the engine overheats

⚠ WARNING

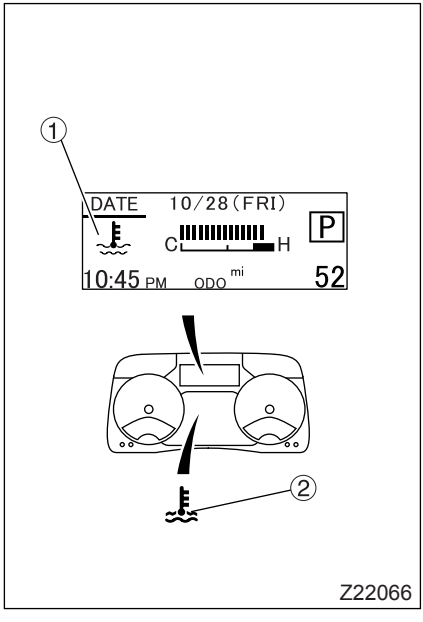
Never remove the pressure cap while the coolant is still hot. Carelessly removing it is dangerous since boiling coolant and hot steam will gush out and could scald you. Only after the coolant has cooled down sufficiently, remove the pressure cap by gripping it in a folded piece of thick cloth and opening it slowly.

⚠ CAUTION

- **Be sure to stop the engine only after letting it run at a speed slightly above the idling RPM until the coolant cools down. Turning off the engine immediately after stopping will cause the coolant temperature to rise quickly and may cause the engine to seize up.**
- **Suddenly pouring cold water into the radiator could make the engine crack. Supply cold water a little at a time.**

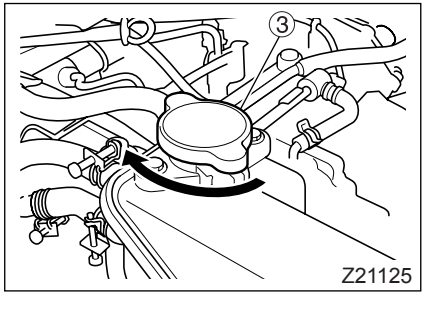
NOTE:

- *When the multi-information display shows ① in amber, the coolant temperature is abnormally high. The vehicle can still be driven.*
- *When the multi-information display shows ① in red and the warning lamp ② is on, the coolant temperature is more higher. The engine power is limited, but the vehicle can still be driven.*



If the warning lamp comes on, the multi-information display shows (red), and a buzzer sounds, the engine has overheated.
Stop the vehicle in a safe place, stop the engine, and perform the following inspections:

1. Tilt the cab. ⇨ P. 12-6
   If the vehicle is a Crew-cab model vehicle, uncover the engine access opening and the opening for inspecting the power steering oil and engine coolant. ⇨ P. 12-4
2. Check that coolant is not leaking from the radiator hoses or from other parts.
3. Check that the fan belt is not broken and that its tension is normal. ⇨ P. 12-61



4. Check the coolant level. If the level is too low, add coolant.
   Refer to Page 12-53 for the recommended coolant for refilling.
   - Turn the pressure cap ③ counterclockwise to remove it, and fill coolant up to the pressure cap opening. Following this, fit the pressure cap by turning it clockwise.
   - Remove the reservoir tank cap, then add coolant until it reaches the “FULL” line. Refit the cap securely after adding coolant.
5. Check that there is no dirt stuck to the front of the radiator. Remove any dirt from the front of the radiator.
6. If coolant leaks or the engine repeatedly overheats, the cooling system is faulty. Have an authorized dealer perform necessary inspection.

When a fuse has blown

Your vehicle uses a 12V electrical system.

⚠ WARNING

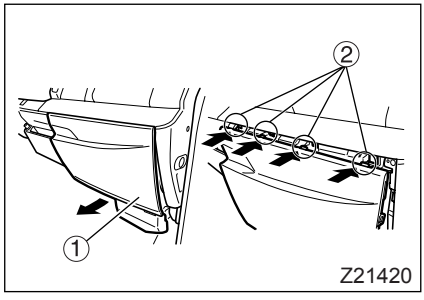
- **Be sure to set the starter switch to "LOCK" and turn off all other electric switches whenever replacing fuses or high-current fuses. Replacing any fuses or high-current fuses while electric circuits are still live could damage related electric equipment.**
- **Be sure to use fuses of the specified amperages.**
  A fire could result if a fuse of incorrect amperage is used. If a fuse is blown, have the vehicle inspected and the blown fuse replaced by an authorized dealer.
- **Do not add wiring or modify equipment yourself. Doing so may result in faulty operation of the equipment and could cause the vehicle to catch fire due to overheated wiring. Always contact an authorized dealer if you intend to install additional electric equipment and it becomes necessary to modify the existing equipment or add new wiring.**

⚠ CAUTION

- **The BlueTec® exhaust gas aftertreatment continues to operate for approx. 2 minutes after placing the starter switch to the "LOCK" position. If you need to remove a fuse, do so after waiting for at least 2 minutes.**
- **Use care not to splash water on or around the fuse box cover. Should water be splashed over the fuse box cover, check the inside of the fuse box for water.**
  Any drops of water left inside the compartment could cause an electrical fault or fire.

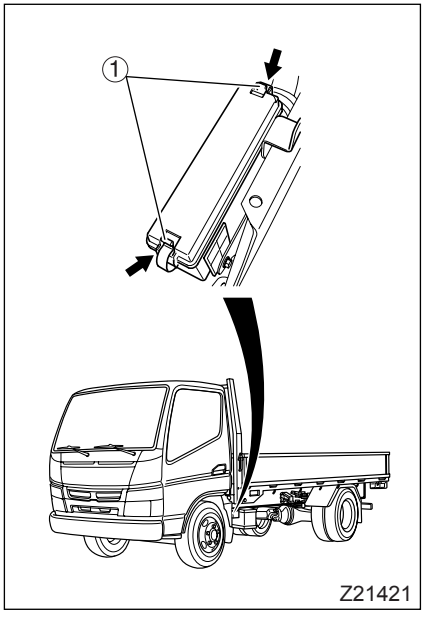
The vehicle has blade-type fuses and high-current fuses. The blade-type fuses are in the fuse box located inside the cab and in the high-current fuse box located outside the cab. The high-current fuse box also contains the high-current fuses.

1 Blade-type fuses



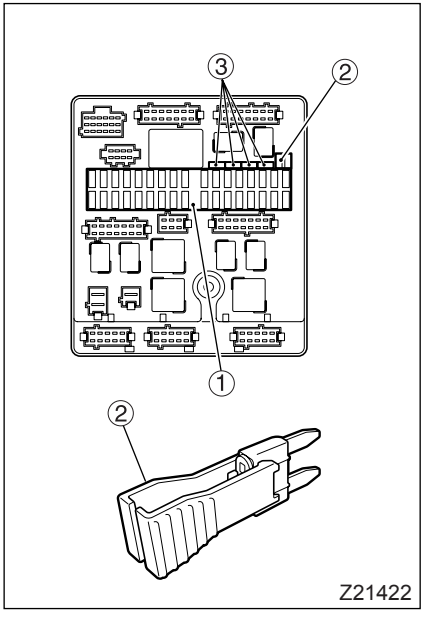
1.1 Removal and installation of lower panel in front of assistant driver's seat

1. Remove the lower panel ① in front of the assistant driver's seat.
2. Reinstall the lower panel by first aligning the claws ② with the corresponding slots and then pushing the panel forward.



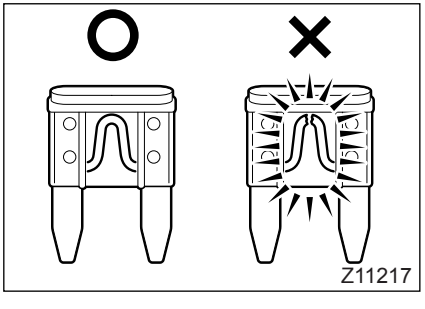
1.2 Removal and installation of high-current fuse box cover

1. Pry and release the two locks ① and remove the cover.
2. To install the cover, push in the cover until the two locks click.

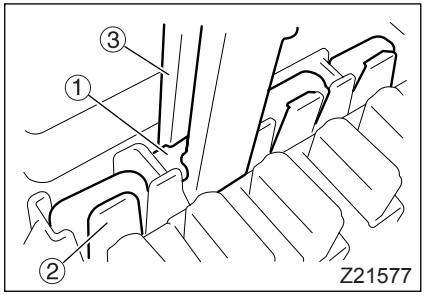


1.3 Inspection and replacement of blade-type fuses

1. Place the starter switch in the “LOCK” position and turn all other switches OFF.
2. To remove the fuse that is to be replaced, grip it using the fuse puller ② in the fuse box ①. The amperage and protected circuit of each fuse are shown on the inside of the lower cover.

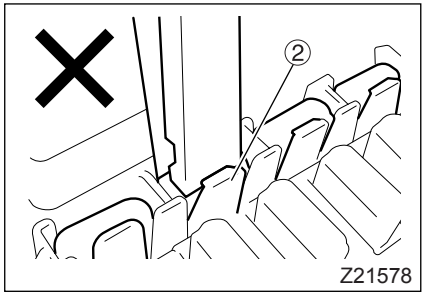


3. If a fuse is blown, be sure to select a spare fuse ③ of the specified amperage for replacement.



1.4 How to remove the spare fuse

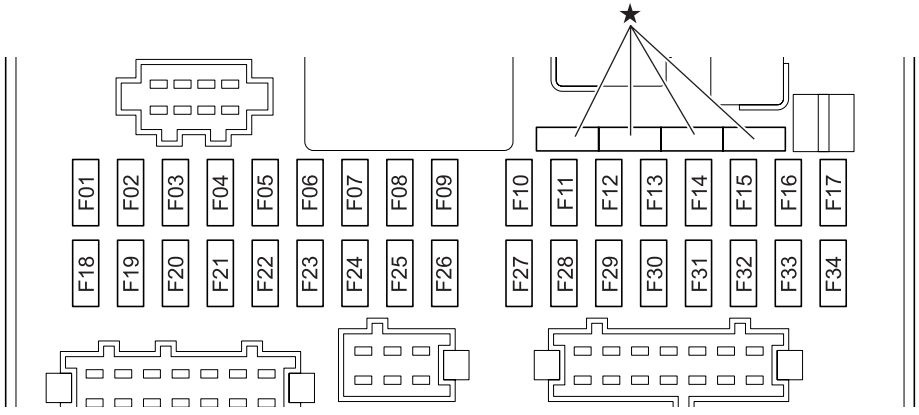
Insert the puller ③ into the gap on the outer side of the fuse holder wall ② to remove the spare fuse ①.



⚠ CAUTION

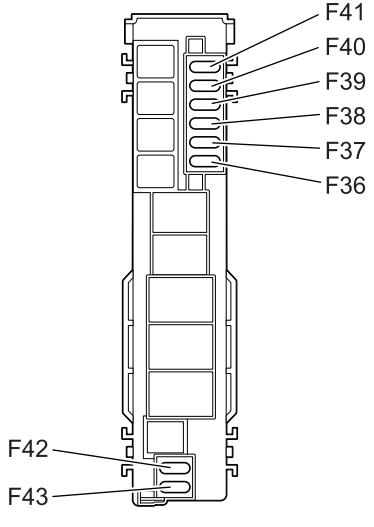
Do not force the puller into the gap on the inner side of the fuse holder wall. Doing so will break the equipment and cause malfunctions or a fire.

<Fuse box>



Z21425

<High-current fuse box>

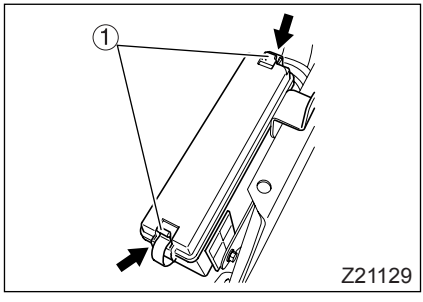


Z21747

Fuse No.	Amperage	Protected circuit
F01	10A	Starter
F02	10A	–
F03	10A	–
F04	10A	Accessory power supply (ignition circuit)
F05	30A	Power window (driver's)
F06	10A	–
F07	30A	Power window (assistant driver's)
F08	20A	Identification lamp
F09	10A	Meter cluster, diagnostic connector
F10	30A	–
F11	30A	Air conditioner blower fan
F12	15A	Audio system, room lamp
F13	10A	Starter switch, engine immobilizer control unit
F14	10A	Horn

Fuse No.	Amperage	Protected circuit
F15	10A	Audio system
F16	20A	Cigarette lighter
F17	20A	Fuel heater
F18	10A	ABS control unit
F19	15A	Engine control unit
F20	10A	Front-wheel drive magnetic valve
F21	10A	–
F22	15A	Meter cluster, air conditioner control, rear air conditioner
F23	10A	–
F24	10A	DUONIC® control unit
F25	10A	Accessory power supply (starter switch ACC circuit)
F26	10A	Accessory power supply (battery circuit)
F27	20A	Van body dome lamp
F28	15A	Engine control unit
F29	20A	SCR system
F30	20A	SCR system
F31	20A	Engine control unit
F32	10A	Air conditioner compressor clutch
F33	–	–
F34	15A	Fuel pump
F35	–	–
F36	20A	DUONIC® control unit
F37	10A	Rear Blower fan motor
F38	15A	Rear condenser fan motor
F39	–	–
F40	20A	A/C condenser fan
F41	30A	ABS control unit
F42	–	–

Fuse No.	Amperage	Protected circuit
F43	–	–
*	10A	Spare fuse
	15A	
	20A	
	30A	

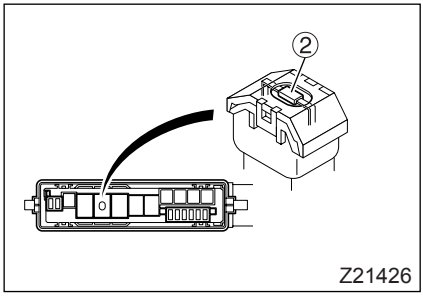


2 High-current fuse

The high-current fuses, which protect circuits in the same way as regular fuses, are fitted in a box next to the battery. If a high-current fuse is blown, most of the vehicle's electrical circuits become inoperative.

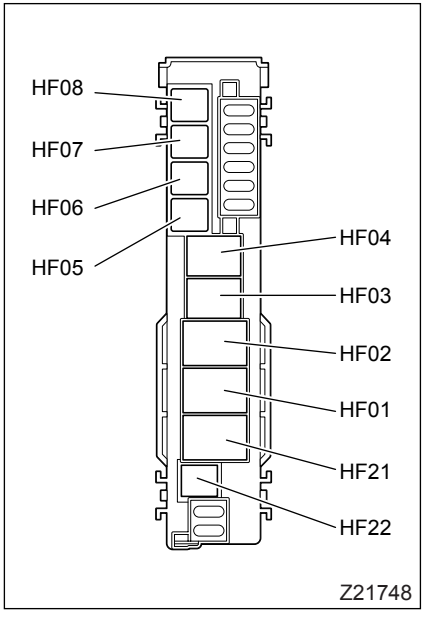
2.1 Inspection

1. Place the starter switch in the "LOCK" position and turn all other switches OFF.
2. Pry and release the two locks ① of the cover with your fingers and remove the cover. To install the cover, push in the cover until the two locks click.



3. Check for a blown high-current fuse by looking into the inside through inspection window ②.
   If it is blown, immediately call an authorized dealer and have them check your vehicle.

NOTE:
The high-current fuses may be hard to check depending on the position of a box.
If you are difficult to inspect, look into the inside through inspection window by tilting up the cab or using an appropriate mirror like a hand mirror.



No.	Amperage (casing color)	Protected circuit
HF01	140A (russet)	SAM
HF02	–	–
HF03	80A (black)	SAM
HF04	–	–
HF05	60A (yellow)	Glow ECU
HF06	40A (green)	Starter relay
HF07	–	–
HF08	50A (red)	Hydraulic unit
HF21	–	–
HF22	40A (green)	SAM

⚠ CAUTION

Close the cover completely to prevent rain water from entering the fuse box.

When a lamp has burned out

Whenever replacing a lamp, be sure to place the starter switch in the “LOCK” position and all other switches in the OFF position.

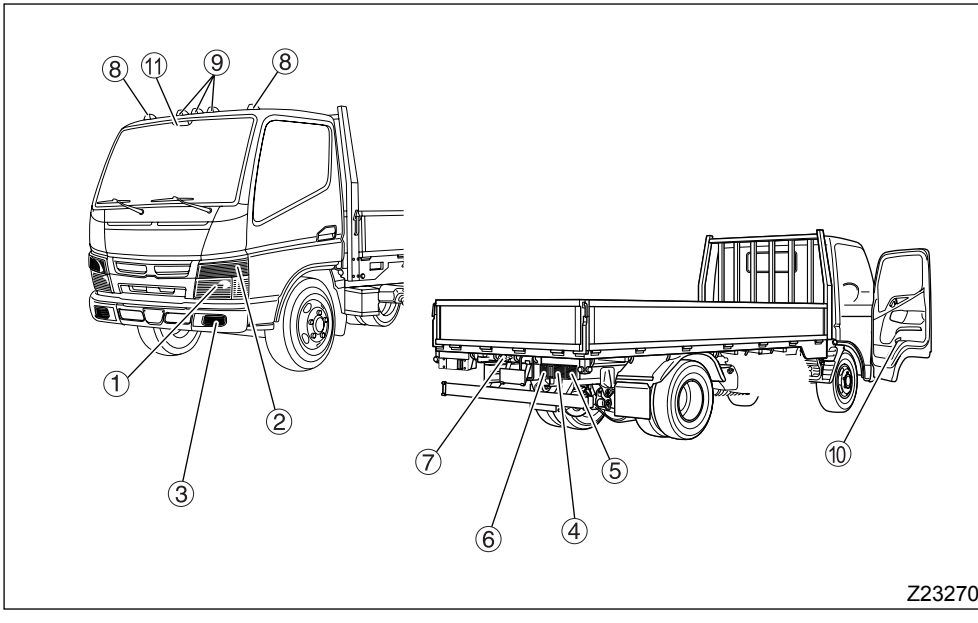
⚠ WARNING

- **Use a lamp of the specified voltage and wattage shown in the following table. If a wrong lamp is used, an excessive current flowing through the wiring impairs the control functions of the electric equipment in the cab and of the rear body installations and eventually could cause a fire.**
- **Do not replace any lamp bulb immediately after it has gone out. The bulb is very hot then and could burn you. Be sure to wait long enough for the bulb to cool down before replacing it.**
- **Do not drop a lamp bulb. Flying fragments of glass could hurt you. Be especially careful when handling a halogen lamp bulb as its high inner pressure increases chance of injury.**

⚠ CAUTION

- **The turn signal lamps have plastic lenses. Do not clean these lenses with alcohol or thinner. Also, be careful not to splash brake fluid on them when adding it to the braking system. Contact with such a substance could discolor or crack the lenses. If such a substance gets on a plastic lens, immediately wipe it off or rinse it off with water.**
- **Burnt bulbs should be replaced as soon as possible.**

NOTE:
In rainy weather and when the vehicle is washed, condensation can form on the inside surfaces of the headlamp lenses. Just as the windows mist up in rainy weather, the condensation forms owing to a temperature difference between the inside and outside. This phenomenon does not affect the headlamps’ functionality. It disappears naturally.



Ref. No.	Lamp	Bulb wattage (bulb type)	Q'ty
①	Headlamp	12V-60/55W (HB2)	2
	Parking lamp	12V-5W (W5W)	2
②	Front and side turn signal lamp	12V-21W (W21W)	2
③	Front fog lamp <option>	12V-55W (H3)	2
④	Stop/tail lamp (double filament)	12V-21/5W (P21/5W)	2
⑤	Rear turn signal lamp	12V-21W (P21W)	2
⑥	Backup lamp	12V-21W (P21W)	2
⑦	License plate lamp	12V-10W (R10W)	1
⑧	Clearance and side marker lamp	12V-7.5W (A12V7.5W)	2
⑨	Identification lamp	12V-7.5W (A12V7.5W)	3
⑩	Step lamp	12V-5W (W5W)	2
⑪	Interior lamp <Type 1>	12V-10W	1
	Interior lamp <Type 2>	12V-8W	2

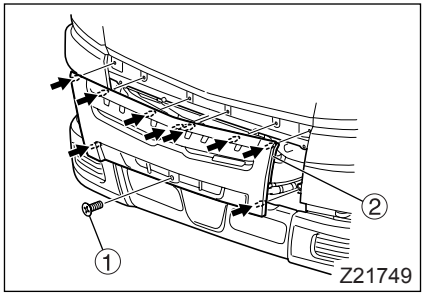
1 Headlamp bulb replacement

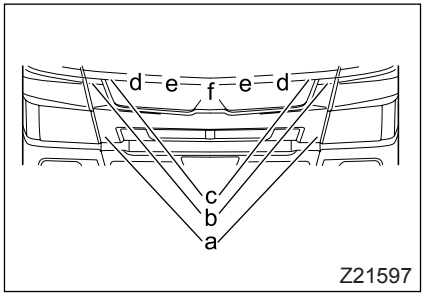
For safety and simplicity, bulb replacement is performed with the headlamp removed. The radiator grill and the front and side turn signal lamp must be removed before the headlamp can be removed.

1.1 Headlamp removal and installation

- **Removing the radiator grille**

1. Remove the screw ① of the radiator grille.





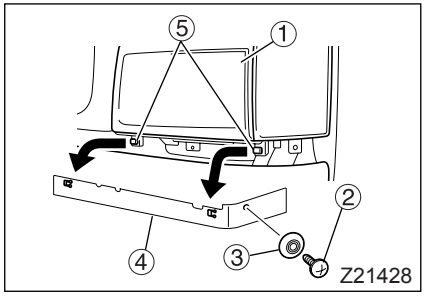
2. Remove the radiator grille by pulling outward on the clipped points in the order of the letters in the illustration.

NOTE:
Pull the grille straight forward and horizontally.

- **Installing the radiator grille**

1. Follow the removal procedure in reverse.
   When installing the front grille, make sure the rubber packing ② at each side of the grille does not protrude from the clearance between the grille and lamp.
2. Finally install the screw.

NOTE:
After installing the front grille, check whether the rubber packing ② at each side of the grille is not protruding between the grille and lamp. If the packing is protruding, push it in so it can't be seen on the surface. Be careful not to damage the front grille or the lamps.

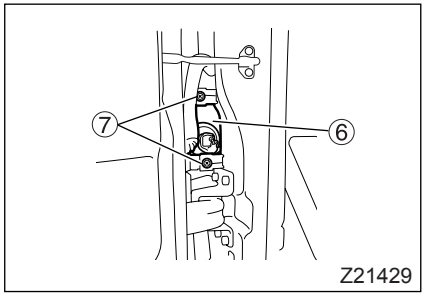


- **Headlamp removal**

1. For removal of the headlamp ①, first remove the screw ② and rivet ③, then move the lamp rubber ④ under the headlamp toward the centerline of the vehicle and release it from the tabs ⑤.

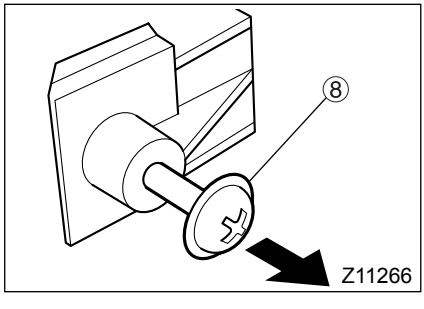
⚠ CAUTION

When removing the lamp rubber, do not pull it with excessive force or the tabs could break.



2. Open the door, then loosen the screws ⑦ behind the front and side turn signal lamp ⑥ until they spin freely.

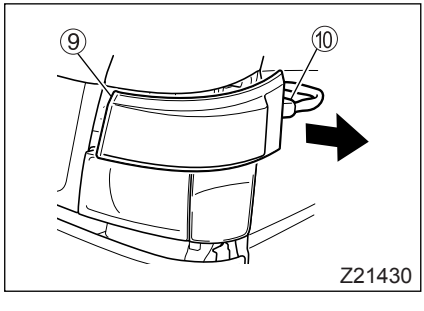
NOTE:
The screws are designed not to come out.



3. Pull out screw ⑧ toward you.

⚠ CAUTION

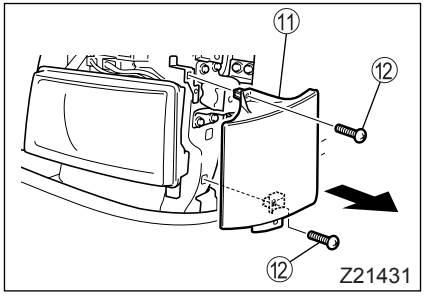
Unless the screw is pulled out, the front and side turn signal lamp will catch on it and you will not be able to remove them.



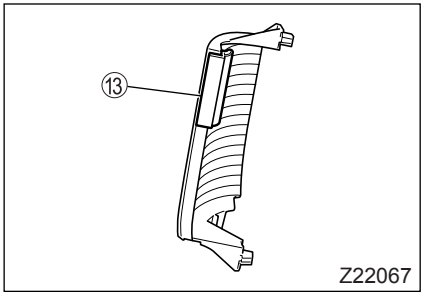
4. Close the door.
5. Remove the front and side turn signal lamp ⑨ toward the outside of the vehicle, then remove the socket ⑩.

⚠ CAUTION

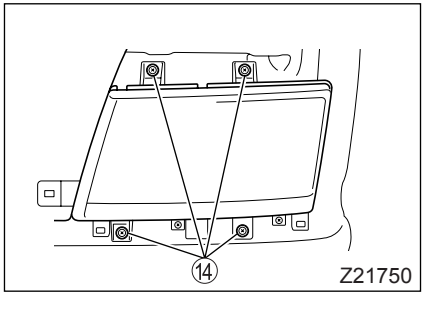
- **When removing the front and side turn signal lamp, do not pull it forward (toward the front of the vehicle) or its tabs could break.**
- **Do not open the door with the front and side turn signal lamp moved outward (but not completely removed) or the door could hit and damage it.**



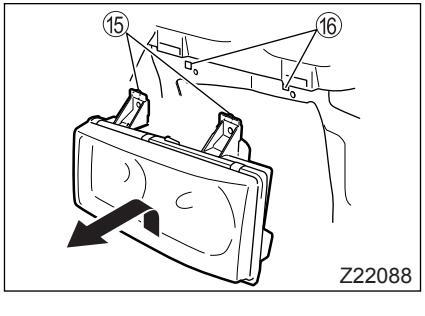
6. Remove the screws ⑫ of the garnish ⑪, then remove the garnish toward the outside of the vehicle.



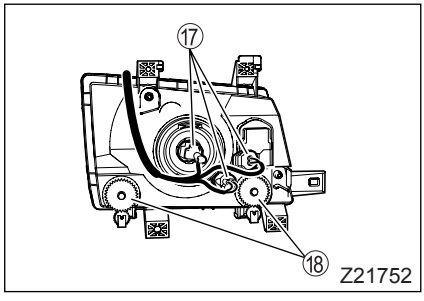
NOTE:
Do not remove the end rubber piece ⑬ from the garnish.



7. Remove the headlamp's bolts ⑭.



8. Raise the headlamp slightly to remove the tabs ⑮ from the holes ⑯, then pull it out toward you.



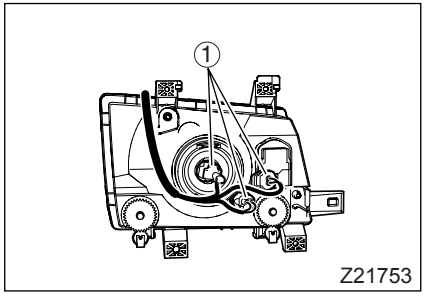
9. Remove the connectors ⑰ from the headlamp thus pulled out.

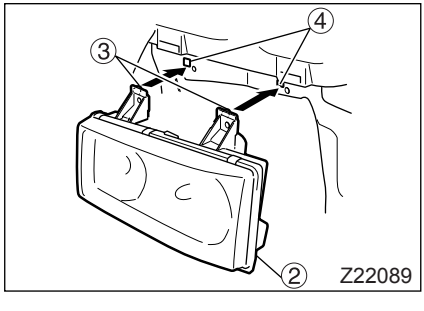
⚠ CAUTION

- **Do not turn the beam adjusting gear ⑱. Turning the beam adjusting gear would change the beam setting, thus creating a nuisance for drivers of other vehicles. If you accidentally turn the beam adjusting gear, have an authorized dealer perform necessary inspection.**
- **When setting down the removed headlamp, place it on a soft cloth to avoid scratching the lens.**

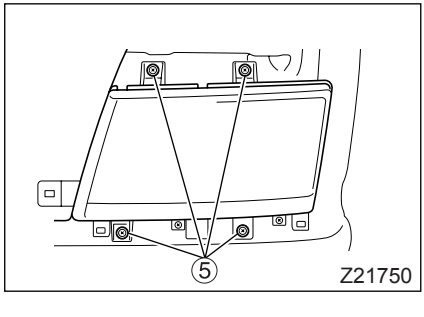
- **Headlamp installation**

1. Install the connectors ① on the headlamp.

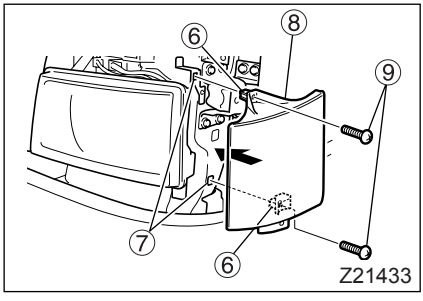




2. Insert the tabs ③ on the headlamp ② into the holes ④, and fit the headlamp in place.



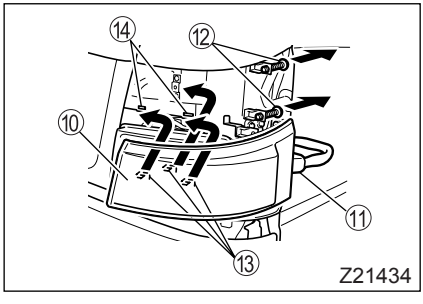
3. Fit the headlamp's bolts ⑤.



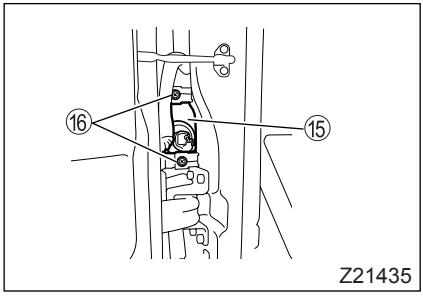
4. Insert the grommet ⑥ on the garnish ⑧ into the grommet hole ⑦, fit the garnish in place, and tighten the screws ⑨.

⚠ CAUTION

Do not tighten the screw too tightly or the mounting could get damaged.



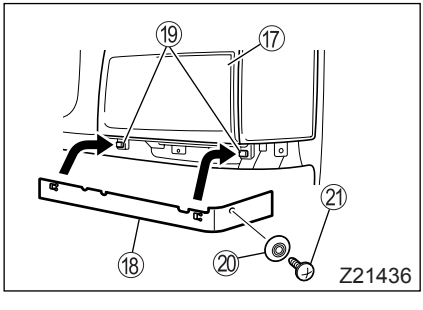
5. Install the socket ⑪ on the front and side turn signal lamp ⑩.
6. Pull out screws ⑫.
7. Align the tabs ⑬ with the holes ⑭, then press the lamp in toward the centerline of the vehicle.



8. Open the door, then tighten the screws ⑯ behind the front and side turn signal lamp ⑮.

⚠ CAUTION

- **Press the front and side turn signal lamp fully in toward the centerline of the vehicle. If the lamp was not pressed fully into place and you opened the door, the door could hit the lamp and damage it.**
- **Do not tighten the screws too tightly or the mounting could get damaged.**

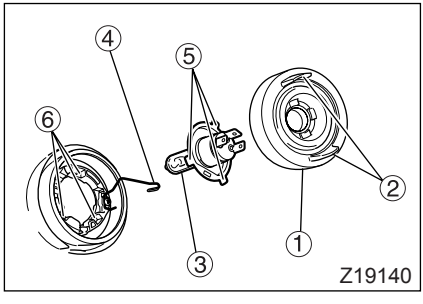


9. Fit the lamp rubber ⑱ under the headlamp ⑰ onto the tabs ⑲ by moving it toward the outside of the vehicle.
10. Fit the rivet ⑳, then press in the screw ㉑.

1.2 Headlamp bulb replacement

⚠ CAUTION

- **Do not directly touch the glass part of a halogen bulb with your fingers. Any oil and other substances contaminating the glass surface could shorten the bulb's service life.**
- **Do not clean lamps with alcohol and thinner, because their lenses are made of plastic.**
- **Do not attach any sticker or tape on the headlamp lens. Doing so may result in deformation of the lens by heat since the lens is made of plastic.**

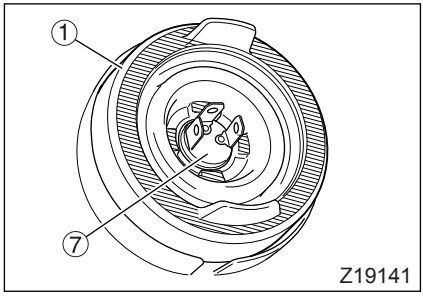


- **Removal**

1. Remove the cover ① by pulling on the lugs ② of the cover.
2. Detach the spring ④ retaining the bulb ③.
3. Pull out the bulb.

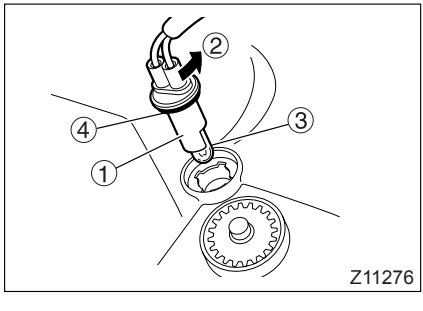
- **Installation**

1. Install the bulb in the lamp unit while aligning the tabs ⑤ with the grooves ⑥, then secure the bulb with the spring.
2. Clean the inside of the cover, if necessary.
3. Install the cover by pushing it until the bulb end ⑦ is exposed a little. Push the shaded area when installing the cover.

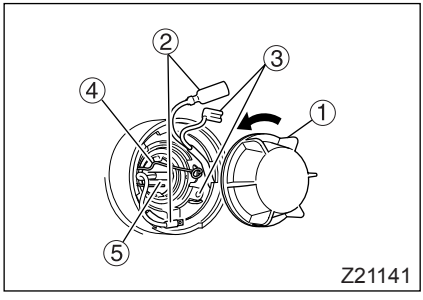


1.3 Parking lamp bulb replacement

1. Turn the socket ① in the direction of the arrow ② to remove it.
2. Remove the bulb ③.
3. Perform installation by following the removal steps in reverse.
4. If the packing ④ is dirty, clean it.

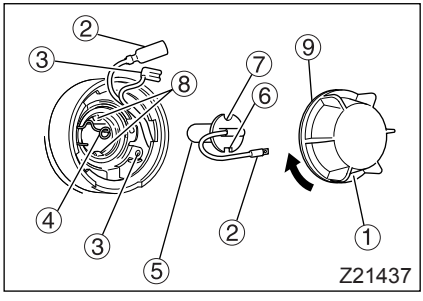


2 Replacing the fog lamp bulb



- **Removal**

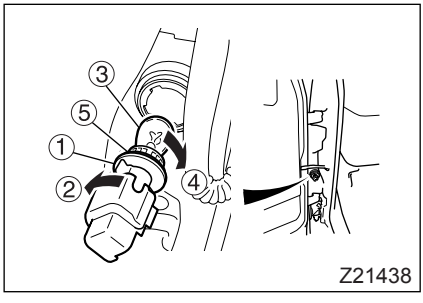
1. Tilt up the cab if it has a tilting mechanism.
2. Remove the cover ① after turning it counter-clockwise to a stop.
3. Disconnect the bulb connector ②.
4. Disconnect the connector ③ from the lamp unit.
5. Unhook the spring ④, then pull out the bulb ⑤.



- **Installation**

1. Hold the bulb with the square groove ⑥ at the top (with the circular groove ⑦ at the bottom), then align the bulb with the lugs ⑧ on the fog lamp unit, install it and fix it with the spring ④.
2. Reconnect the connector ② of the bulb.
3. Reconnect the connector ③ to the fog lamp unit.
4. Clean the packing ⑨ if necessary. Also straighten the packing if it is twisted.
5. Install the cover on the lamp unit and turn it clockwise.
6. Lower the cab if it was tilted up.

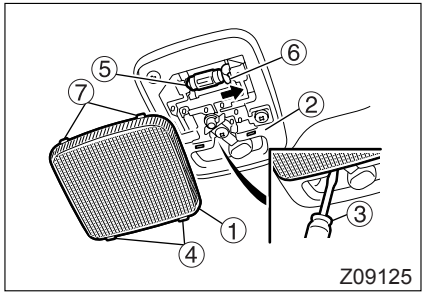
3 Front and side turn signal lamp bulb replacement



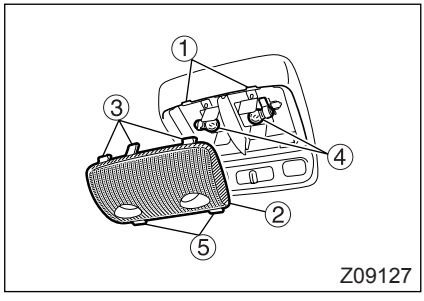
1. Open the door.
2. Turn the socket ① in the direction of arrow ② to remove it.
3. Press the bulb ③ and turn it in the direction of arrow ④ to remove it.
4. Perform installation by following the removal steps in reverse.
5. If the packing ⑤ is dirty, clean it.

4 Interior lamp bulb replacement

4.1 Type 1 <front and rear seats>

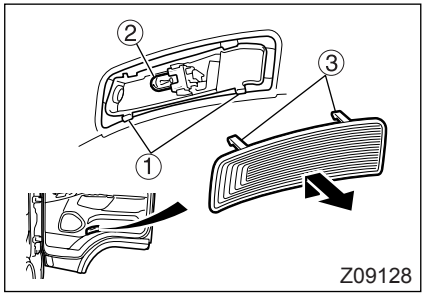


1. Insert a flat-blade screwdriver ③ between the lens ① and the interior lamp ② and use it to release the tabs ④ on the bottom of the lens. Remove the lens.
2. Push the bulb retainer ⑥ rightward and remove the bulb ⑤.
3. To install the lens, insert the tabs ⑦ on the top of the lens and press the bottom of the lens into place.



4.2 Type 2 <option>

1. Insert a flat-blade screwdriver into the notches ① and use it to release the tabs ③ on the top end of the lens ②. Remove the lens.
2. Remove the bulb ④ by turning it counterclockwise while pushing inward.
3. Install the lens by inserting the tabs ⑤ at the bottom end of the lens into the slots and pushing the lens while aligning the tabs on the top end with the notches.



5 Step lamp

1. Insert a flat-blade screwdriver into the tab ① locations at the bottom end of the lens and remove the lens by pulling it toward you while raising it.
2. Pull out the bulb ②.
3. Install the lens by inserting the tabs at the bottom end into the slots and then pushing the locations of the tabs ③ at the top end of the lens.

6 Replacing other lamps

1. Loosen the screw that secures the lens then remove the lens.
2. Turn the bulb counterclockwise while pressing it and remove it.
3. Insert a new bulb and turn it clockwise.
4. Fit the lens, ensuring that the packing is correctly positioned. If the packing is incorrectly installed or twisted, water can enter the lamp and shorten its life. If the packing is dirty, clean it.
5. Uniformly tighten the screws that retain the lens.

When braking is sluggish

⚠WARNING

- **Never use the parking brake during driving except in an emergency. Pulling the parking brake lever with full force while driving could cause the vehicle to topple over.**
- **Never continue driving with the brake system malfunctioning or leaking fluid.**

Depress the brake pedal harder than usual, downshift to use engine braking and activate exhaust braking <option> to stop the vehicle. Apply the parking brake when necessary. After the vehicle has been brought into a stop, check parts, then have an authorized dealer perform necessary inspection.

If the engine stalls while the vehicle is in motion

The vehicle will be set into the following very dangerous condition. Pull the vehicle over when safe to do so and try to start the engine.

- The braking force reduces extremely. You must exert additional force on the brake pedal to apply the brakes.
- The power steering system then becomes inoperative, making steering extremely difficult. Additional force must be used when turning the steering wheel.

If a tire goes flat while the vehicle is in motion

Avoid sudden braking. Hold the steering wheel firmly, and gradually slow down before pulling over at a safe place.
To replace the tire, select a flat surface where your vehicle will not hinder traffic. ⇨📖 P. 12-70

When the battery has run down

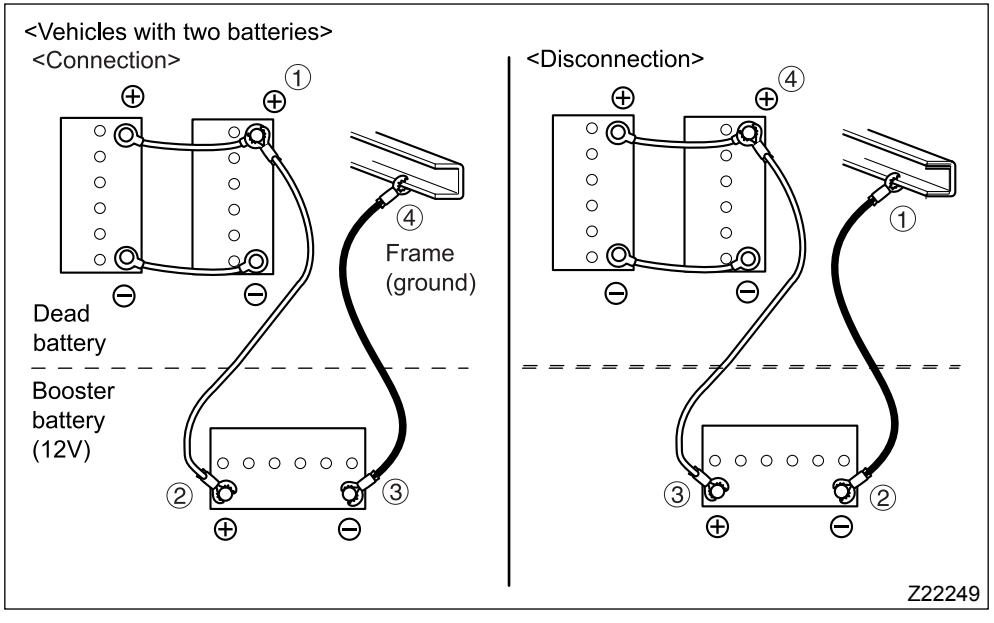
Perform the following procedure to start your engine by connecting your battery to the well charged battery of another vehicle with booster cables.

⚠ WARNING

- **Check the battery's fluid level before connecting booster cables. If the fluid is below the "LOWER" level line, add battery fluid or distilled water. If the battery was charged with an excessively low fluid level, it would deteriorate rapidly and could overheat or explode.**
- **Be careful not to connect the booster cables in the wrong sequence. Sparks are often produced when you connect the booster cable to the vehicle's frame. Therefore, if the cable is connected to a section of the frame near the battery, the spark could set off the hydrogen given off by the battery to cause an explosion. Be sure to connect the cable end to a point as far away as possible from the battery.**
  Also, keep cigarettes and open flames well away from the battery.
- **Unless absolutely necessary, do not starting the engine by towing or pushing the vehicle. Doing so is dangerous because the brakes work poorly and the steering wheel becomes very difficult to turn.**

⚠ CAUTION

- **Use booster cables able to handle large currents.**
- **Your vehicle's electrical system operates on a 12V power supply. Confirm that the vehicle giving the boost also has a battery or batteries connected for 12V power supply.**



1. Stop the engine of the vehicle giving the boost.
2. Remove the battery cover. ⇨ P. 12-83
3. Connect one end of the red booster cable to the positive (+) terminal ① of the dead battery. Connect the other end of the red booster cable to the positive (+) terminal ② of the booster battery.
4. Connect one end of the black booster cable to the negative (–) terminal ③ of the booster battery and connect the other end of the black booster cable to a section of frame ④ (ground) on the vehicle with the dead battery at a point as far away as possible from the battery.
5. After the above connections have been completed, start the engine of the vehicle with the booster battery and let it run at an RPM slightly higher than idling speed. Then, attempt to start the engine of the vehicle with the dead battery.
   If the engine starts with difficulty because of cold weather or a dead battery, let it draw a charge for several minutes from the vehicle from which you are receiving the boost before attempting to turn over the engine.
6. After the engine of the vehicle with the dead battery has been started, disconnect the booster cables by reversing the order of connection.

If fuel tank becomes empty (Bleeding the fuel system)

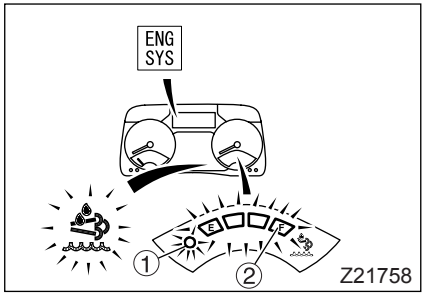
When the vehicle runs out of fuel and the engine stalls, also when the fuel filter has been replaced, or if water has been drained from the fuel filter, air that has entered the fuel system prevents the engine from being started even if the engine has been refueled after running dry.
In these cases, bleed the fuel system by performing the following steps.

⚠ WARNING

After replacing the fuel filter, make sure fuel does not leak from the filter or from related parts. Any fuel leakage could cause a fire.

1. Bleed air from the fuel system as follows: Hold the starter switch in the “ON” position for 30 seconds and then set it to “ACC” position to supply fuel to the fuel system.
2. After replacing the fuel filter, start the engine and check that there is no fuel leakage.

If the DEF tank becomes empty



- If the DPF tank becomes empty, the warning lamp, DEF level warning lamp ① and DEF level indicator lamp ② all start flashing and the ENG SYS warning is shown. A buzzer also sounds. The gear is then locked in first or reverse, so the vehicle can be driven only slowly. If this condition happens, you must refill the DEF tank immediately. ⇨ P. 1-9

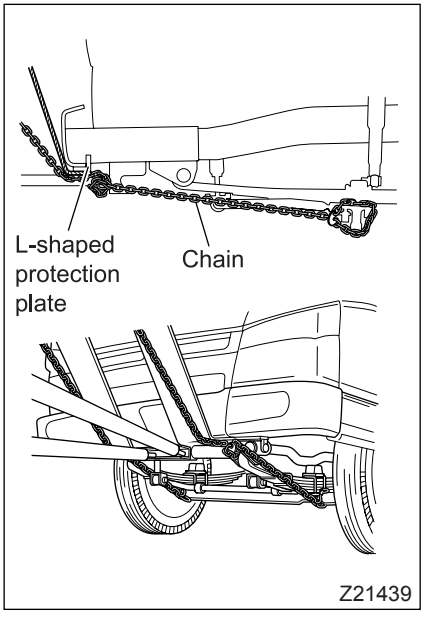
Towing

If you are forced to tow the vehicle, take the following precautions:

- On an FE model vehicle, disconnect either the propeller shaft or the rear axle shaft, whichever is easier.
  If you disconnect the rear axle shaft, cover the opening to prevent oil and grease from escaping.

⚠ CAUTION

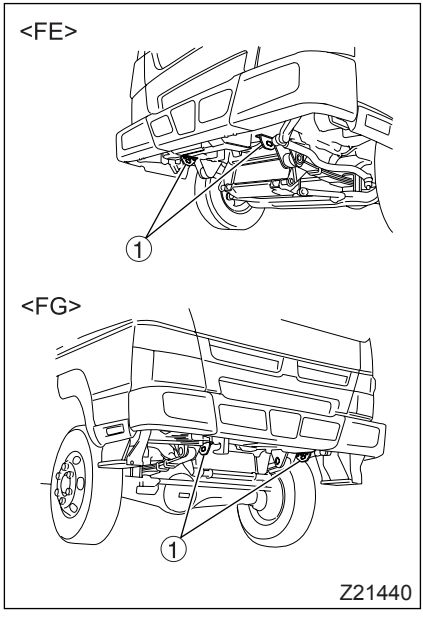
- **On an FE model vehicle, disconnect the propeller shaft or rear axle shaft. Alternatively, tow the vehicle with its rear wheels off the ground. Towing the vehicle without taking these precautions would damage the transmission.**
- **Before towing a 4WD vehicle, raise the front wheels and disconnect the propeller shaft at the rear.**



- To prevent damage to the front bumper when raising the front wheels, attach an L-shaped protection plate.
- Attach the towing chain securely to the front axle.

⚠ CAUTION

- **Do not attach the chain to the bumper since the bumper would be damaged upon raising the front wheels or towing.**
- **Before raising the front wheels or towing, confirm that the chain will not damage the stabilizer or any other part of the vehicle.**
  If the chain looks likely to cause damage, use a thicker L-shaped protection plates to hold the chain further from the vehicle.
- **Tow the vehicle only with a specially designed towing truck.**
- **If you disconnect the rear axle shaft to tow the vehicle, the axle housing gear oil may be depleted. Check the axle housing gear oil and add more if necessary.** ⇨ **P. 12-35**



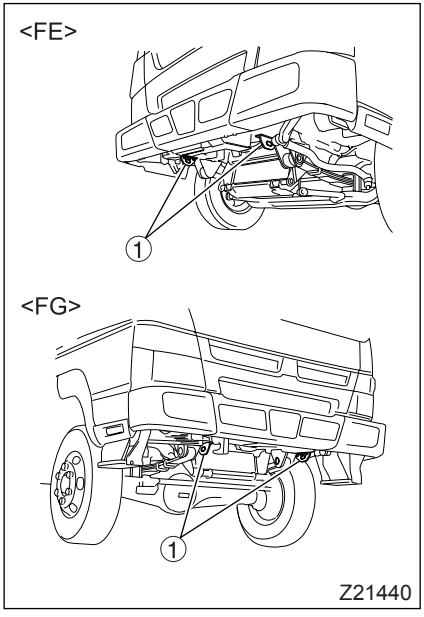
- **Never use the tie-down hook(s) ① under the frame for towing purpose. The tie-down hook is to secure the vehicle when transporting it. If the hook is used for towing, damage to the front bumper or frame may result.**

When the vehicle becomes stuck in soft ground

<FG>
If the vehicle becomes stuck in sand, mud, or snow, free it by driving forward and backward.
⇨ P. 7-13
If this method is not successful, free the vehicle by towing it as described below.

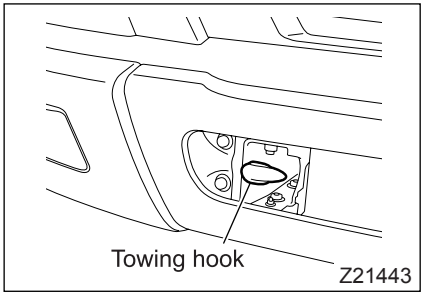
⚠ CAUTION

- **Use the towing method described in this section only to free the vehicle from soft ground. To tow the vehicle in the event of a breakdown, use the method described in the previous section.**
- **The stranded vehicle must be unloaded completely.**



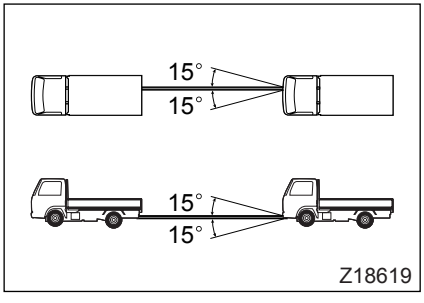
- **Never use the tie-down hook(s) ① under the frame for towing purpose. The tie-down hook is to secure the vehicle when transporting it. If the hook is used for towing, damage to the front bumper or frame may result.**

1. Tow the stranded vehicle using a vehicle whose gross weight is equal to that of the stranded vehicle (14,050 lbs., 6,375 kg). Attach the rope or wire rope to the towing hook of the towing vehicle.
2. Attach the other end of the rope or wire rope to the towing hook of the stranded vehicle. If necessary, use another towing hook that is located behind the left-hand side rail.



⚠ WARNING

To avoid the risk of a serious accident, make sure the rope or wire rope is strong enough to tow the stranded vehicle and make sure it does not slip off either vehicle's towing hook.



3. For the sake of safety, the angle formed by the tow rope when hooked up should be limited to the range indicated in the illustration. Do not tow a vehicle under conditions which could impose sudden undue stress on the hooks (for instance, towing a vehicle out of a ditch) as doing so could break the hooks.
4. Start each vehicle's engine and prepare to start driving.
5. If the rope or wire rope is slack, eliminate the slackness by moving the towing vehicle.

6. Slowly drive both vehicles forward. Do not race either vehicle's engine.
7. When the towed vehicle becomes free, promptly stop it each vehicle by applying the brake pedal. To make the rope or wire rope easy to remove from the towing hooks, let it become slightly slack before stopping the towed vehicle.

14. Service data

Recommended lubricants/hydraulic fluids and quantities 14-2
Service data 14-4

Recommended lubricants/hydraulic fluids and quantities

1 Quantities of lubricants/hydraulic fluids

liters (qts)

Item			Quantity
Engine			Approx. 6.2 (6.5)
Clutch			Approx. 2.0 (2.1)
Transmission			Approx. 3.5 (3.7)
Transfer <FG>			Approx. 3.6 (3.8)
Axle housing	FE		Approx. 4.5 (4.8)
	FG	Front axle	Approx. 3.0 (3.2)
		Rear axle	Approx. 4.5 (4.8)
Power steering			Approx. 1.5 (1.6)
Brake fluid			As required

⚠ CAUTION

The indicated oil and fluid quantities should be used only as a guide at the time of replacement. To ensure correct oil and fluid levels, use the oil level gauge, inspection plug holes, and level lines as appropriate.

2 Recommended lubricants/hydraulic fluids

Be sure to use the specified lubricants.

Parts	Category	Classification	Viscosity	
			Atmospheric temperature	SAE viscosity number
Engine	Engine oil	API CJ-4	Below 0°C (32°F)	10W–30
			Above –15°C (5°F)	15W–40
			Above 30°C (86°F)	40
		ACEA C2	Below 0°C (32°F)	5W–30
Transmission Transfer <FG>	Gear oil	API GL-3	General	80
			Warm region	90
		API GL-4	General	80
			Tropical region	90
Clutch	Automatic transmission fluid	FUSO ATF SP III	–	–
Axle housing *1	Gear oil	API GL-5	Below 40°C (104°F)	90
			Above 40°C (104°F)	140 or 85W–140
Limited-slip differential <vehicles with limited slip differential>	FUSO LSD GEAR OIL or an equivalent	API GL-5	–	90
Power steering	Automatic transmission fluid	DEXRON II or DEXRON III type	–	–
Brake	Brake fluid	SAE J1703, FMVSS No. 116 (Grade DOT3)	–	–
Chassis grease nipples (rear spring pin, king pin) Door hinge Anchor hooks <Vehicles other than Crew-cab models>	Chassis grease	NLGI No. 1 (Li soap) Consistency 310 to 340 (at 25°C or 77°F) Dropping point 130°C (266°F) or higher	–	–
Wheel hub bearing Propeller shaft (universal joint, slip joint, double cardan joint <FG>)	Wheel bearing grease (Multipurpose type grease)	NLGI No. 2 (Li soap) Consistency 265 to 295 (at 25°C or 77°F) Dropping point 185°C (365°F) or higher	–	–
Propeller shaft center bearing	Bearing grease	NLGI No. 3 (Li soap) Consistency 220 to 250 (at 20°C or 68°F) Dropping point 250°C (482°F) or higher Usable temperature range –40 to 150°C (–40 to 302°F)	–	–

*1: At ambient temperatures higher than 10°C (50°F), use an oil conforming to GL-5, SAE140 or SAE85W-140 if the vehicle is used under such a heavy load conditions as continuous upgrade climbing.

Service data

Description			Standard value
Engine idling speed			650 rpm
Coolant quantity		Vehicles other than those specified below	Approx. 14 liters (14.8 qts)
		Crew cab (with rear air conditioner)	Approx. 15.1 liters (16 qts)
		Crew cab (with rear heater)	Approx. 15.2 liters (16.1 qts)
Brake pedal play (at center of pedal pad)			0.1 to 3 mm (0.0039 to 0.12 in.)
Fully depressed brake pedal to floor clearance			10 mm (0.39 in.) or more
Parking brake lever stroke (When pulled with a force of 294 N {66 lbs., 30 kgf}.)			7 to 9 notches
Steering wheel play (as measured on the periphery of steering wheel)		When engine is turned off	10 to 20 mm (0.39 to 0.79 in.)
		When engine is idling	5 to 50 mm (0.20 to 1.97 in.)
Tire tread groove depth			1.6 mm (0.06 in.) or more
Wheel nut tightening torque			440 to 540 N·m (325 to 398 ft.lbs., 45 to 55 kgf·m)
Tire inflation pressure	FEC52	LT215/85R16-10PR (Load Range E)	550 kPa (80 psi, 5.5 kgf/cm^2)
	FEC72 FEC92	215/75R17.5 124/123L (Load Range F)	690 kPa (100 psi, 7.0 kgf/cm^2)
	FG	LT235/85R16-10PR (Load Range E)	550 kPa (80 psi, 5.5 kgf/cm^2)

15. Maintenance schedule

Regular maintenance is vital to maximizing your vehicle's performance, service life, and safety.
Following the maintenance schedule will give optimum results.
The preceding sections describe simple maintenance checks and procedures that can be carried out by the owner. If you have difficulty or your vehicle needs maintenance work that is not shown in this manual, please take the vehicle to an authorized dealer.

Symbols used
I : Inspect, and correct or replace as necessary.
A : Adjust.
C : Clean.
R : Replace or change.
T : Tighten.
L : Lubricate.
•: No inspection is necessary.

1 Maintenance schedule

For the replacement intervals of lubricants and fluids, see the section entitled "Lubrication schedule".

Ⓔ: Exhaust emission items.
Ⓝ: Noise control items.

Item	Time of inspection and maintenance							Working procedures	Ref. page
			Inspection interval						
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles		
ENGINE									
Leakage of coolant, fuel and oil	I	•	•	•	•	•	•	Check the underneath of the vehicle for any sign of leakage.	–
ⒺⓃ Engine conditions	I	•	•	•	•	•	•	Check the engine for smooth starting and quiet running.	–
Ⓔ Oil filter replacement	•	•	Every 30,000 km/ 18,000 miles or 12 months					Replace oil filters.	12-40
Ⓔ Fuel filter replacement	•	•	Every 30,000 km/ 18,000 miles or 12 months					Replace fuel filter.	12-43
Ⓔ Fuel line leakage and damage	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check for leakage of fuel from the fuel line. Check the pipe, hose and tube for damage and loose installation.	–
ⒺⓃ Belts tension and damage	•	•	Every 30,000 km/18,000 miles or 12 months					Inspect belts for crack, wear and tension.	12-61

Item	Time of inspection and maintenance							Working procedures	Ref. page
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Inspection interval						
			Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles		
V-belt replacement	•	•	Every 120,000 km/ 72,000 miles or 24 months					Replace V-belt.	–
Ⓔ Cooling system	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check radiator and pressure cap for sealing performance and mounting condition. Inspect hoses for looseness, deterioration, damage causing leakage.	–
	•	•	Every 30,000 km/ 18,000 miles or 12 months					Remove dust and foreign matter deposit from radiator and intercooler front.	–
Coolant level	I	•	•	•	•	•	•	Check that the coolant level is between the “FULL” and “LOW” marks on the reservoir tank.	12-56
Coolant replacement	•	•	Every 24 months					Replace coolant.	12-52
ⒺⓃ Air cleaner element replacement	•	•	Every 30,000 km/ 18,000 miles or 12 months					Replace air cleaner element.	12-47
ⒺⓃ Exhaust system	•	•	Every 30,000 km/ 18,000 miles or 12 months					Inspect the exhaust system for damage, corrosion and loose connection causing leakage.	–
Ⓔ DPF	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check DPF for damage and for leaks of exhaust gases. Check mounting bolts and nuts for looseness. Check mounting brackets for damage.	–
DEF line leakage and damage	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check for leakage of DEF from the DEF line. Check the pipe, hose and tube for damage and loose installation.	–
Alternator tensioner replacement	•	•	Every 240,000 km/ 144,000 miles or 60 months					Replace alternator tensioner.	–
Glow plug replacement	•	•	Every 240,000 km/ 144,000 miles or 60 months					Replace glow plug.	–

Item	Time of inspection and maintenance							Working procedures	Ref. page
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Inspection interval: Every 10,000 km/6,000 miles	Every 20,000 km/12,000 miles	Every 30,000 km/18,000 miles	Every 40,000 km/24,000 miles	Every 50,000 km/30,000 miles		
POWER TRAIN									
Propeller shaft flange torque and universal joint looseness	•	I	Every 30,000 km/18,000 miles or 12 months					Check flange yoke bolts for looseness and universal joint for play.	–
Propeller shaft center bearing	•	•	Every 60,000 km/36,000 miles or 24 months					Check center bearing if trace of grease flowing out is evident. Check center bearing for wear, damage and play.	–
FRONT AND REAR AXLE									
Wheel hub bearing	•	•	Every 60,000 km/36,000 miles or 12 months					Check wheel hub bearing for play.	–
Wheel hub bearing hub seals replacement	•	•	Every 60,000 km/36,000 miles or 12 months					When wheel hub bearing grease is replaced, also replace the wheel hub bearing hub seals.	–
Wheel and tire	I	•	Every 30,000 km/18,000 miles or 12 months					Check disc wheel for corrosion, deformation and cracks.	12-67
	I	•	Every 30,000 km/18,000 miles or 12 months					Check tire tread and side wall for cracks and damage. Measure tire tread groove depth to make sure it is deep enough. Check tire tread for uneven wear, stepped wear and other abnormal wear.	
	A	•	•	•	•	•	•	Measure inflation pressure with tire gauge.	
	•	•	Every 30,000 km/18,000 miles or 12 months					Rotate all tires.	12-79
Tie rod ball joint dust boots	•	•	Every 30,000 km/18,000 miles or 12 months					Check the ball joint dust boots for cracks and wear.	–
Wheel nuts looseness	•	I	Every 30,000 km/18,000 miles or 12 months					Check wheel nuts for looseness. Check at the first 50 to 100 km/30 to 60 miles after changing a wheel.	12-77

Item	Time of inspection and maintenance							Working procedures	Ref. page
			Inspection interval						
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles		
SUSPENSION SYSTEM									
Suspension springs	I	•	•	•	•	•	•	Check for broken springs and tilt of vehicle body toward either side.	–
U-bolts looseness	•	I	Every 30,000 km/ 18,000 miles or 12 months					Check U-bolt nuts for looseness. Check at the first 1,000 km/ 600 miles after removing and retightening U-bolt nuts.	–
BRAKING SYSTEM									
Service brake pedal	I	•	•	•	•	•	•	Check brake pedal play and stroke.	12-65
Brake performance	I	•	•	•	•	•	•	Depress the brake pedal and check that the brakes work effectively and evenly on all wheels.	12-65
Disc brake pad and disc	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check disc brake pad and disc for damage and wear.	–
Brake lining	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check lining for wear through inspection hole.	–
Brake drum	•	•	Every 30,000 km/ 18,000 miles or 12 months					Disassemble and check drum for wear, crack and damage.	
Parking brake lever stroke	I	•	•	•	•	•	•	Check parking brake lever stroke.	12-66
Looseness, play and damage of brake system parts	•	•	Every 30,000 km/ 18,000 miles or 12 months					Inspect brake lines and hoses looseness, play and damage. Inspect wheel cylinder and brake master cylinder for looseness, play and damage.	–
STEERING SYSTEM									
Steering wheel play	I	•	•	•	•	•	•	Turn steering wheel right and left to measure play at steering wheel rim. Measure while engine is running.	12-63
Steering wheel operation	I	•	•	•	•	•	•	Check that the steering wheel does not vibrate or pull to one side and that it is not unduely heavy. Also make sure that the steering wheel returns to its neutral position smoothly.	12-64

Item	Time of inspection and maintenance							Working procedures	Ref. page
			Inspection interval						
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles		
Steering system	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check steering system for looseness, steering wheel play and operating condition. Inspect for oil leaks, booster and oil pump function.	12-63
Drag link ball joint dust boots	•	•	Every 30,000 km/ 18,000 miles or 12 months					Check the ball joint dust boots for cracks and wear.	–
CAB									
Defroster	I	•	•	•	•	•	•	Make sure that warm air blows properly onto the windshield.	9-4, 9-10
Rearview mirrors	I	•	•	•	•	•	•	Seated in the driver's seat, adjust the angles for clear views of the sides and rear. Make sure the mirrors are clean.	–
License plate and reflector condition	I	•	•	•	•	•	•	Check the license plate and reflectors for loose installation, damage, and dirt.	–
Door locks	I	•	•	•	•	•	•	Push down the lock knob and verify that the door does not open even when the inner handle is operated.	–
Seat belts	I	•	•	•	•	•	•	Confirm that the seat belt buckles function correctly when fastening and unfastening.	–
ELECTRICAL SYSTEM									
Horn operation	I	•	•	•	•	•	•	Press the horn button to check that the horn is working properly.	–
Windshield washer fluid level	I	•	•	•	•	•	•	Confirm that the windshield washer fluid level is above the bottom of the inspection window.	12-82
Windshield wiper and washer operation	I	•	•	•	•	•	•	Check the washer for proper fluid spray direction and the wipers for normal action.	5-18
Lighting system	I	•	•	•	•	•	•	Make sure that each lamp lights up or flashes properly. Check lamp lenses for dirt and damage.	5-16

Item	Time of inspection and maintenance							Working procedures	Ref. page
			Inspection interval						
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles		
Gauge, warning/ indicator lamp operation	I	•	•	•	•	•	•	Check that gauges, warning lamps and indicators are working properly.	6-2
Battery	I	•	•	•	•	•	•	Check the battery fluid level.	12-84

2 Lubrication schedule

Ⓔ: Exhaust emission items.

Item	Time of inspection and maintenance							Reference page
			Inspection interval					
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles	
Ⓔ Engine oil level	I	•	•	•	•	•	•	12-23
Ⓔ Engine oil replacement	•	•	Every 30,000 km/ 18,000 miles or 12 months (Every 15,000 km (9,000 miles) at the severe condition*)					
Transmission oil replacement	•	•	Every 60,000 km/ 36,000 miles or 24 months					12-29
Clutch control fluid replacement	•	•	Every 60,000 km/ 36,000 miles or 24 months					–

*;
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles).
- The vehicle is driven mostly at 20 km/h (12 mph) or slower.
- Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).
- The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).

Item		Time of inspection and maintenance							Reference page
		Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Inspection interval					
				Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles	
Transfer gear oil replacement <FG>		•	•	Every 60,000 km/ 36,000 miles or 24 months					12-32
Rear axle housing gear oil replacement		•	•	Every 60,000 km/ 36,000 miles or 24 months					12-34
Front axle housing gear oil replacement <FG>		•	•	Every 60,000 km/ 36,000 miles or 24 months					
Hub bearing grease replacement		•	•	Every 60,000 km/ 36,000 miles or 12 months					–
Front axle birfield joint grease replacement <FG>		•	•	•	•	R	•	•	–
Front axle kingpin bearing grease replacement <FG>		•	•	•	•	R	•	•	–
Front axle steering knuckle grease replacement <FG>		•	•	•	•	R	•	•	–
Brake fluid level		I	•	•	•	•	•	•	12-38
Brake fluid replacement		•	•	Every 24 months					–
Power steering fluid replacement		•	•	Every 30,000 km/ 18,000 miles or 12 months					–
Lubrication of propeller shaft	Center bearing	•	•	Every 60,000 km/ 36,000 miles or 24 months					–
	Universal joint, slip joint	•	L	Every 30,000 km/ 18,000 miles or 12 months					12-19
	Double cardan joint <FG>	•	•	Every 30,000 km/ 18,000 miles or 12 months					12-19

Item	Time of inspection and maintenance							Reference page
	Pre-operational checks	1st maintenance at 4,000 km/2,500 miles	Inspection interval					
			Every 10,000 km/ 6,000 miles	Every 20,000 km/ 12,000 miles	Every 30,000 km/ 18,000 miles	Every 40,000 km/ 24,000 miles	Every 50,000 km/ 30,000 miles	
Lubrication of rear suspension spring pin	•	•	Every 30,000 km/ 18,000 miles or 12 months					12-19
Lubrication of kingpins	•	•	Every 30,000 km/ 18,000 miles or 12 months					
Lubrication of door hinge	•	•	Every 30,000 km/ 18,000 miles or 12 months					12-22
Lubrication of anchor hook <Vehicles other than Crew-cab models>	•	•	Every 30,000 km/ 18,000 miles or 12 months					12-23

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17. MAINTENANCE RECORD

NOTE:

- The symbols Ⓔ and Ⓝ prefixed to some check items stand for Exhaust Emission Control item and Noise Control item respectively.
- The latter half of the maintenance record contains the maintenance record sheets used for periodic maintenance scheduled by time (months).

4,000 km / 2,500 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

4,000 km / 2,500 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Lubrication of universal joints, slip joint

Inspection and maintenance

Power train

☐ Propeller shaft flange torque and universal joint looseness

Front and rear axle

☐ Wheel nuts looseness

Suspension system

☐ U-bolts looseness

15,000 km / 9,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

15,000 km / 9,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

30,000 km / 18,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

30,000 km / 18,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Continued on reverse side

Power train

☐ Propeller shaft flange torque and universal joint looseness (or 12 months)

Front and rear axle

☐ Wheel and tire (or 12 months)

☐ Tie rod ball joint dust boots (or 12 months)

☐ Wheel nuts looseness (or 12 months)

Suspension system

☐ U-bolts looseness (or 12 months)

Braking system

☐ Disc brake pad and disc (or 12 months)

☐ Brake lining (or 12 months)

☐ Brake drum (or 12 months)

☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

☐ Steering system (or 12 months)

☐ Drag link ball joint dust boots (or 12 months)

45,000 km / 27,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

45,000 km / 27,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

60,000 km / 36,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

60,000 km / 36,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Transmission oil replacement (or 24 months)
- ☐ Clutch control fluid replacement (or 24 months)
- ☐ Transfer gear oil replacement <FG> (or 24 months)
- ☐ Rear axle housing gear oil replacement (or 24 months)
- ☐ Front axle housing gear oil replacement <FG> (or 24 months)
- ☐ Wheel hub bearing grease replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of center bearing (or 24 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Continued on reverse side

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Power train

- ☐ Propeller shaft flange torque and universal joint looseness (or 12 months)
- ☐ Propeller shaft center bearing (or 24 months)

Front and rear axle

- ☐ Wheel hub bearing (or 12 months)
- ☐ Wheel hub bearing hub seals replacement (or 12 months)
- ☐ Wheel and tire (or 12 months)
- ☐ Tie rod ball joint dust boots (or 12 months)
- ☐ Wheel nuts looseness (or 12 months)

Suspension system

- ☐ U-bolts looseness (or 12 months)

Braking system

- ☐ Disc brake pad and disc (or 12 months)
- ☐ Brake lining (or 12 months)
- ☐ Brake drum (or 12 months)
- ☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

- ☐ Steering system (or 12 months)
- ☐ Drag link ball joint dust boots (or 12 months)

75,000 km / 45,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

75,000 km / 45,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

90,000 km / 54,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

90,000 km / 54,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Continued on reverse side

Power train

☐ Propeller shaft flange torque and universal joint looseness (or 12 months)

Front and rear axle

☐ Wheel and tire (or 12 months)

☐ Tie rod ball joint dust boots (or 12 months)

☐ Wheel nuts looseness (or 12 months)

Suspension system

☐ U-bolts looseness (or 12 months)

Braking system

☐ Disc brake pad and disc (or 12 months)

☐ Brake lining (or 12 months)

☐ Brake drum (or 12 months)

☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

☐ Steering system (or 12 months)

☐ Drag link ball joint dust boots (or 12 months)

105,000 km / 63,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

105,000 km / 63,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

120,000 km / 72,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

120,000 km / 72,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Transmission oil replacement (or 24 months)
- ☐ Clutch control fluid replacement (or 24 months)
- ☐ Transfer gear oil replacement <FG> (or 24 months)
- ☐ Rear axle housing gear oil replacement (or 24 months)
- ☐ Front axle housing gear oil replacement <FG> (or 24 months)
- ☐ Wheel hub bearing grease replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of center bearing (or 24 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Continued on reverse side

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts replacement (or 24 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Power train

- ☐ Propeller shaft flange torque and universal joint looseness (or 12 months)
- ☐ Propeller shaft center bearing (or 24 months)

Front and rear axle

- ☐ Wheel hub bearing (or 12 months)
- ☐ Wheel hub bearing hub seals replacement (or 12 months)
- ☐ Wheel and tire (or 12 months)
- ☐ Tie rod ball joint dust boots (or 12 months)
- ☐ Wheel nuts looseness (or 12 months)

Suspension system

- ☐ U-bolts looseness (or 12 months)

Braking system

- ☐ Disc brake pad and disc (or 12 months)
- ☐ Brake lining (or 12 months)
- ☐ Brake drum (or 12 months)
- ☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

- ☐ Steering system (or 12 months)
- ☐ Drag link ball joint dust boots (or 12 months)

135,000 km / 81,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

135,000 km / 81,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

150,000 km / 90,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

150,000 km / 90,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Continued on reverse side

Power train

☐ Propeller shaft flange torque and universal joint looseness (or 12 months)

Front and rear axle

☐ Wheel and tire (or 12 months)

☐ Tie rod ball joint dust boots (or 12 months)

☐ Wheel nuts looseness (or 12 months)

Suspension system

☐ U-bolts looseness (or 12 months)

Braking system

☐ Disc brake pad and disc (or 12 months)

☐ Brake lining (or 12 months)

☐ Brake drum (or 12 months)

☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

☐ Steering system (or 12 months)

☐ Drag link ball joint dust boots (or 12 months)

165,000 km / 99,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

165,000 km / 99,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

180,000 km / 108,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

180,000 km / 108,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Transmission oil replacement (or 24 months)
- ☐ Clutch control fluid replacement (or 24 months)
- ☐ Transfer gear oil replacement <FG> (or 24 months)
- ☐ Rear axle housing gear oil replacement (or 24 months)
- ☐ Front axle housing gear oil replacement <FG> (or 24 months)
- ☐ Wheel hub bearing grease replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of center bearing (or 24 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Continued on reverse side

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Power train

- ☐ Propeller shaft flange torque and universal joint looseness (or 12 months)
- ☐ Propeller shaft center bearing (or 24 months)

Front and rear axle

- ☐ Wheel hub bearing (or 12 months)
- ☐ Wheel hub bearing hub seals replacement (or 12 months)
- ☐ Wheel and tire (or 12 months)
- ☐ Tie rod ball joint dust boots (or 12 months)
- ☐ Wheel nuts looseness (or 12 months)

Suspension system

- ☐ U-bolts looseness (or 12 months)

Braking system

- ☐ Disc brake pad and disc (or 12 months)
- ☐ Brake lining (or 12 months)
- ☐ Brake drum (or 12 months)
- ☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

- ☐ Steering system (or 12 months)
- ☐ Drag link ball joint dust boots (or 12 months)

195,000 km / 117,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

195,000 km / 117,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

210,000 km / 126,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

210,000 km / 126,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Continued on reverse side

Power train

☐ Propeller shaft flange torque and universal joint looseness (or 12 months)

Front and rear axle

☐ Wheel and tire (or 12 months)

☐ Tie rod ball joint dust boots (or 12 months)

☐ Wheel nuts looseness (or 12 months)

Suspension system

☐ U-bolts looseness (or 12 months)

Braking system

☐ Disc brake pad and disc (or 12 months)

☐ Brake lining (or 12 months)

☐ Brake drum (or 12 months)

☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

☐ Steering system (or 12 months)

☐ Drag link ball joint dust boots (or 12 months)

225,000 km / 135,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

225,000 km / 135,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

240,000 km / 144,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

240,000 km / 144,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Transmission oil replacement (or 24 months)
- ☐ Clutch control fluid replacement (or 24 months)
- ☐ Transfer gear oil replacement <FG> (or 24 months)
- ☐ Rear axle housing gear oil replacement (or 24 months)
- ☐ Front axle housing gear oil replacement <FG> (or 24 months)
- ☐ Wheel hub bearing grease replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of center bearing (or 24 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Continued on reverse side

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts replacement (or 24 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)
- ☐ ⒺⓃ Alternator tensioner replacement (or 60 months)
- ☐ Glow plug replacement (or 60 months)

Power train

- ☐ Propeller shaft flange torque and universal joint looseness (or 12 months)
- ☐ Propeller shaft center bearing (or 24 months)

Front and rear axle

- ☐ Wheel hub bearing (or 12 months)
- ☐ Wheel hub bearing hub seals replacement (or 12 months)
- ☐ Wheel and tire (or 12 months)
- ☐ Tie rod ball joint dust boots (or 12 months)
- ☐ Wheel nuts looseness (or 12 months)

Suspension system

- ☐ U-bolts looseness (or 12 months)

Braking system

- ☐ Disc brake pad and disc (or 12 months)
- ☐ Brake lining (or 12 months)
- ☐ Brake drum (or 12 months)
- ☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

- ☐ Steering system (or 12 months)
- ☐ Drag link ball joint dust boots (or 12 months)

255,000 km / 153,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

255,000 km / 153,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

270,000 km / 162,000 miles
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

270,000 km / 162,000 miles
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Continued on reverse side

Power train

☐ Propeller shaft flange torque and universal joint looseness (or 12 months)

Front and rear axle

☐ Wheel and tire (or 12 months)

☐ Tie rod ball joint dust boots (or 12 months)

☐ Wheel nuts looseness (or 12 months)

Suspension system

☐ U-bolts looseness (or 12 months)

Braking system

☐ Disc brake pad and disc (or 12 months)

☐ Brake lining (or 12 months)

☐ Brake drum (or 12 months)

☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

☐ Steering system (or 12 months)

☐ Drag link ball joint dust boots (or 12 months)

285,000 km / 171,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

285,000 km / 171,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

300,000 km / 180,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

300,000 km / 180,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

- ☐ Ⓔ Engine oil replacement (or 12 months)
- ☐ Transmission oil replacement (or 24 months)
- ☐ Clutch control fluid replacement (or 24 months)
- ☐ Transfer gear oil replacement <FG> (or 24 months)
- ☐ Rear axle housing gear oil replacement (or 24 months)
- ☐ Front axle housing gear oil replacement <FG> (or 24 months)
- ☐ Wheel hub bearing grease replacement (or 12 months)
- ☐ Front axle birfield joint grease replacement <FG>
- ☐ Front axle kingpin bearing grease replacement <FG>
- ☐ Front axle steering knuckle grease replacement <FG>
- ☐ Power steering fluid replacement (or 12 months)
- ☐ Lubrication of propeller shaft center bearing (or 24 months)
- ☐ Lubrication of universal joints, slip joint (or 12 months)
- ☐ Lubrication of double cardan joint <FG>
- ☐ Lubrication of rear suspension spring pin (or 12 months)
- ☐ Lubrication of king pins (or 12 months)
- ☐ Lubrication of door hinge (or 12 months)
- ☐ Lubrication of anchor hook (or 12 months) <Vehicles other than Crew-cab models>

Continued on reverse side

Inspection and maintenance

Engine

- ☐ Ⓔ Oil filter replacement (or 12 months)
- ☐ Ⓔ Fuel filter replacement (or 12 months)
- ☐ Ⓔ Fuel line leakage and damage (or 12 months)
- ☐ ⒺⓃ V-belts tension and damage (or 12 months)
- ☐ Ⓔ Cooling system (or 12 months)
- ☐ ⒺⓃ Air cleaner element replacement (or 12 months)
- ☐ ⒺⓃ Exhaust system (or 12 months)
- ☐ Ⓔ DPF (or 12 months)
- ☐ Ⓔ DEF line leakage and damage (or 12 months)

Power train

- ☐ Propeller shaft flange torque and universal joint looseness (or 12 months)
- ☐ Propeller shaft center bearing (or 24 months)

Front and rear axle

- ☐ Wheel hub bearing (or 12 months)
- ☐ Wheel hub bearing hub seals replacement (or 12 months)
- ☐ Wheel and tire (or 12 months)
- ☐ Tie rod ball joint dust boots (or 12 months)
- ☐ Wheel nuts looseness (or 12 months)

Suspension system

- ☐ U-bolts looseness (or 12 months)

Braking system

- ☐ Disc brake pad and disc (or 12 months)
- ☐ Brake lining (or 12 months)
- ☐ Brake drum (or 12 months)
- ☐ Looseness, play and damage of brake system parts (or 12 months)

Steering system

- ☐ Steering system (or 12 months)
- ☐ Drag link ball joint dust boots (or 12 months)

315,000 km / 189,000 miles
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

315,000 km / 189,000 miles
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Ⓔ Engine oil replacement

NOTE:
If you drive your vehicle under any of the following conditions (severe conditions), the engine oil should be replaced every 15,000 km (9,000 miles) in accordance with the replacement intervals as severs.

- *The vehicle is driven mostly at 20 km/h (12 mph) or slower.*
- *Operation involves starting and stopping the engine frequently (at 10-minute intervals or shorter).*
- *The vehicle is repeatedly driven for short distances of less than 10 km (6 miles).*

24 months (2 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

24 months (2 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

48 months (4 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

48 months (4 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

72 months (6 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

72 months (6 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

96 months (8 years)
SERVICE OPERATIONS

Owner's name: _____

Date: _____

Address: _____

_____

_____

Total mileage: _____

Servicing dealer's name: _____

_____

Address: _____

_____

Signature: _____

96 months (8 years)
SERVICE OPERATIONS

Owner's name: _____ Date: _____

Address: _____

Vehicle identification number: _____

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

120 months (10 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

120 months (10 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

144 months (12 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

144 months (12 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

168 months (14 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

168 months (14 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

192 months (16 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

192 months (16 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

216 months (18 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

216 months (18 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

240 months (20 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

240 months (20 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

264 months (22 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

264 months (22 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

288 months (24 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

288 months (24 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

312 months (26 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

312 months (26 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

336 months (28 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

336 months (28 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

360 months (30 years)
SERVICE OPERATIONS

Owner's name:

Date:

Address:

Total mileage:

Servicing dealer's name:

Address:

Signature:

360 months (30 years)
SERVICE OPERATIONS

Owner's name: Date:

Address:

Vehicle identification number:

Lubrication

☐ Brake fluid replacement

Inspection and maintenance

Engine

☐ Ⓔ Coolant replacement

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